

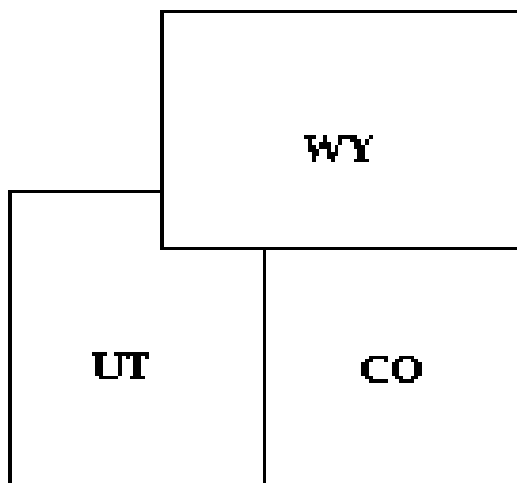
REGIONAL QUARTERS RENTAL SURVEY



COVERING
GOVERNMENT-FURNISHED QUARTERS
LOCATED IN

COLORADO/UTAH/WYOMING SURVEY REGION

(COLORADO/UTAH/WYOMING SURVEY DATE: APRIL 2002)
(EFFECTIVE DATE: MARCH 9, 2003)



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I. SURVEY BACKGROUND

The Quarters Management and Information Systems (QMIS) Office coordinated a contractor-conducted field survey of the private rental housing market in the state of Arizona, Colorado, Idaho, Montana, South Dakota and Wyoming, from April 2002 through June 2002. This survey was undertaken as specified in the Office of Management and Budget (OMB) Circular No. A-45, and the U.S. Department of the Interior's Departmental Quarters Handbook. OMB Circular A-45 provides for reconfirmation of the market based rental rates at least once every five years, or sooner, if conditions warrant.

The collection and analysis of rental housing data were accomplished employing methods similar to those used in previous surveys. Automated and manual analytical procedures were used to establish base rental rates for houses (including plexes), apartments, mobile homes, and trailer spaces. Rental rates for cabins were established based upon their comparability with 1-bedroom houses. Rental rates for temporary housing and travel trailers were established based upon their comparability with mobile homes. Rental rates for dormitories, bunkhouses and transient quarters were established by extending the principle of comparability, as provided for in OMB Circular A-45.

The objective of regional surveys, as set forth in OMB Circular No. A-45, is to develop reasonable rental rates based upon the ". . . typical rental rates for comparable private housing in the general area in which the Government quarters are located . . ." The policy set forth in OMB Circular A-45 is as follows:

Rental rates and charges for Government quarters and related facilities will be based upon their "reasonable value...to the employee...in the circumstances under which the quarters and facilities are provided, occupied, or made available."...reasonable value to the employee or other occupant is determined by the rule of equivalence; namely, that charges for rent and related facilities should be set at levels equal to those prevailing for comparable private housing located in the same area, when practicable...

The regional survey method uses regression analysis techniques to establish a base rental rate for a given type of quarters that reflects the typical rate for that type of housing in the survey area. Regression analysis allows the QMIS Program Office to establish adjustments that reflect: (1) the contributory value (+ or -) of housing features that the private rental market indicates are significant; and (2) relevant social and economic factors that are manifested in the rent levels of individual communities.

Because regression analysis permits assessment of (and adjustment for) different locations, as measured by market rents, several localities or states can be surveyed at a time to minimize data collection costs and the rates can be individualized for communities significantly at variance with the regional rent pattern.

The resulting product (finalized rental rates), when derived from carefully applied automated statistical analysis, provides a logical and equitable base rental rate structure supported by the market rental rate pattern of the region and the community.

II. INVENTORY OF GOVERNMENT-FURNISHED QUARTERS

This survey was initiated with an inventory of Government-furnished quarters (GFQ) managed by the agencies and bureaus that participate in the QMIS program.

Most agencies and bureaus are now using the QMIS database software to manage their inventories. The QMIS Program Office in Denver developed this software. The database software allows an installation or region to maintain its own housing inventory. Rents can be calculated in just minutes, even for hundreds of quarters. This decentralized system provides local control of the housing inventory. As always, the key to accurate rents is accurate, up-to-date inventory information. Software with the new housing rental rate formulas and new utility rates is distributed from Denver whenever new regional surveys are conducted or at CPI time. If you do not receive new CPI software by approximately January 1st of each year, please contact the QMIS Program Office (303-969-7240). It is important that all agencies and bureaus submit (on diskettes or via electronic mail) updates to their housing inventories at least once a year. This information is used to determine the communities and characteristics to be sampled in new Regional Surveys. The information is also used for various general management reports.

III. CONTRACTING FOR THE PRIVATE RENTAL SURVEY

A. DETERMINATION OF THE COMMUNITIES TO BE SURVEYED

Selection of the communities to be surveyed was initiated with a review of the nearest established communities identified in the quarters inventory process. Their geographic locations and populations were determined to enable selection of established communities nearest to concentrations of Government housing.

Inclusion of these communities enables a comparison of the community rental rate structure with that of the survey region. This permits a ready determination of whether the local or the regional rental rate structure should be utilized to establish the GFQ base rents. A complete discussion of this process is contained in section IV of this report.

The communities surveyed represented broad geographic and population ranges. The largest community surveyed, Lakewood, CO, had a 2000 population of 144,126. The smallest community, Granby, CO, had a population of 1,525. A list of the surveyed communities appears as Table 1. In accordance with OMB Circular A-45, communities with 2000 census populations below 1,500 were not analyzed.

TABLE 1 COMMUNITIES SURVEYED

<u>STATE AND COMMUNITY</u>	<u>2000 CENSUS POPULATION</u>
COLORADO	
Alamosa, CO	7,960
Buena Vista, CO	2,195
Cortez, CO	7,977
Craig, CO	9,189
Del Norte, CO	1,705
Delta, CO	6,400
Eagle, CO	3,032
El Jebel, CO	4,488
Estes Park, CO	5,413
Ft. Collins, CO	118,652
Fruita, CO	6,478
Glenwood Springs, CO	7,736
Granby, CO	1,525
Grand Junction, CO	41,986
Gunnison, CO	5,409
Idaho Springs, CO	1,889
Kremmling, CO	1,578
Lakewood, CO	144,126
Leadville, CO	2,821
Meeker, CO	2,242
Monte Vista, CO	4,529
Montrose, CO	33,432
Pagosa Springs, CO	1,591
Rangely, CO	2,096
Rifle, CO	6,784
Silverthorne, CO	3,196
Springfield, CO	1,562
Steamboat Springs, CO	9,815
Woodland Park, CO	6,515
IDAHO	
Montpelier, ID	2,785
St. Anthony, ID	3,342

STATE AND COMMUNITY	2000 CENSUS POPULATION
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MONTANA

Livingston, MT	6,851
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SOUTH DAKOTA

Belle Fourche, SD	4,565
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UTAH

American Fork, UT	21,941
Beaver, UT	2,454
Cedar City, UT	20,527
Delta, UT	3,209
Ephraim, UT	4,505

Castle Dale, UT	1,657
Heber City, UT	2,025
Hurricane, UT	8,250
Kanab, UT	3,564
Moab, UT	4,779

Monticello, UT	1,958
Panguitch, UT	1,623
Price, UT	8,402
Richfield, UT	6,847
Roosevelt, UT	4,299

Tooele, UT	22,502
Tremonton, UT	5,592
Vernal, UT	7,714

WYOMING

Alton, WY	1,818
Cody, WY	8,835
Evanston, WY	11,507
Green River, WY	11,808
Greybull, WY	1,815

Jackson, WY	8,647
Kemmerer, WY	2,651
Lander, WY	6,867
Lovell, WY	2,281
Newcastle, WY	3,065

<u>STATE AND COMMUNITY</u>	<u>2000 CENSUS POPULATION</u>
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Rawlins, WY	8,538
Riverton, WY	9,310
Saratoga, WY	1,726
Sheridan, WY	15,804

B. DETERMINATION OF THE HOUSING CLASSES TO BE SURVEYED

In order to determine which housing classes to survey, the inventory data for the agencies participating in the QMIS system were separated into housing classes shown in Table 2, below. Analysis of the data revealed the following numbers of units per housing class:

TABLE 2 GOVERNMENT-FURNISHED QUARTERS - (BY HOUSING CLASS)

Housing Class	# of Units	Avg Age	Age Range	Avg. SQFT	SQFT Range
Houses					
4+ Bedrooms	50	51	(39 – 72)	1,597	(1,400 – 1,779)
3 Bedrooms	468	48	(9 – 111)	1,236	(766 – 2,382)
2 Bedrooms	344	55	(8 – 112)	1,015	(424 – 1,961)
1 Bedroom	144	63	(7 – 105)	785	(216 – 1,720)
Apartments					
3+ Bedrooms	3	31	(8 – 65)	1,129	(880 – 1,881)
2 Bedrooms	65	39	(8 – 85)	861	(1,152 – 1,538)
1 Bedroom	97	42	(15 – 109)	580	(264 – 820)
Efficiency	89	44	(31 - 61)	375	(162 - 437)
Cabins	159	64	(16 – 101)	371	(128 – 1,350)
Mobile Homes					
4+ Bedrooms	3	18	(14)	1,760	(1,760)
3 Bedrooms	60	32	(15 – 41)	1,050	(750 – 1,300)
2 Bedrooms	114	27	(10 – 38)	865	(600 – 1,100)
1 Bedroom	15	25	(9 – 35)	550	(172 – 770)
Travel Trailers	27	23	(8 – 37)	294	(100 – 1,900)
Dormitories	198	43	(7 – 108)	1,244	(116 – 7,500)
Trailer Pads	154				
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TOTAL UNITS	1,990				

As with other regional surveys, the contractor was directed to survey only those housing classes for which a representative sample could be readily obtained in the private rental market. Thus, comparables were not obtained for cabins or lookouts, temporary housing, travel trailers, bunkhouses/dormitories, transient quarters or tents.

Rental rates for cabins were established by using the average rental rate for one-bedroom, single-family houses as the basis of comparison. Additional adjustments, that reflect the absence of certain standard housing features in some cabins, have been included for use when appropriate.

Since temporary housing and travel trailers (mobile home-like structures containing less than 256 square feet of gross living area) are most structurally similar to mobile homes, the rental charges for these housing classes are based upon the analysis of mobile home market rental comparables.

Since comparable bunkhouse or dormitory housing does not exist in most communities, the QMIS Program Office is unable to obtain sufficient market data to provide a satisfactory statistical base. Consequently, rental rates for bunkhouses and dormitories have been established using an extension of the Principle of Comparability, as permitted in OMB Circular A-45. Similarly, the rental charge for transient quarters has been established in conjunction with the dormitory rate structure.

OMB Circular A-45, revised October 20, 1993, excludes tents from the definition of Government-furnished quarters. Therefore, rental charges have not been established (and should not be assessed) for tents which are used as employee housing.

Four housing classes (houses/plexes, apartments, mobile homes and trailer spaces) were ultimately selected for field survey and computer analysis. The contractor was instructed to select comparables, built to Housing and Urban Development (HUD) minimum housing standards, wherever possible. The number of observations obtained for each housing class in each community surveyed varied depending upon the number of nearby Government quarters of that class. The inventory data for each of the housing classes was analyzed to determine frequencies and age and size ranges for major construction elements. The information in Table 2 was used to guide the contractor in the conduct of the survey.

C. HEATING FUELS AND UTILITY CHARGE SURVEY

To ensure reliability of the energy consumption estimates for housing where consumption is neither metered nor measured, this report uses a series of contractor-developed heating and cooling consumption tables for each general type of housing represented in the survey. The tables are based upon energy consumption studies that use a methodology meeting housing industry standards. The results reflect energy consumption for variously sized single-family houses (with and without basements), apartments, and mobile homes. A complete discussion of the energy consumption/cost methodology is contained in Section VI.

D. CONTRACTOR SELECTION

The National Business Center, Products and Services provided procurement support and project coordination for this Private Rental Survey. Reimbursement for survey expenses was underwritten by the agencies and bureaus that participate in the Quarters Management Program.

The private rental survey was completed by Delta-21 Resources Inc. of Oak Ridge, TN, during the months of April 2002 through June, 2002. A total of 1,271zz private rental housing comparables were sampled. In addition, electrical, heating fuel, utility, appliance, and other related service charges were collected in each of the communities surveyed. The private rental housing costs that were obtained reflected current rental costs and required no adjustment for time.

IV. REGIONAL SURVEY PRINCIPLES AND PROCEDURES

A. SURVEY PRINCIPLES

The purpose of a regional survey is to determine and establish reasonable quarters rents, through an analysis of the market rents of comparable private housing in established communities nearest to concentrations of Government housing. The process of arriving at the base rent of a structure is influenced by real estate appraisal principles, statistical limitations, and administrative considerations. Often there may be a conflict among these three interests, which necessitates a trade-off.

1. Real estate appraisal principles include matching comparables as closely as possible to the specific subject properties in physical characteristics and location, and adjusting in a logical direction for all significant differences.
2. Statistical principles involve: (a) trying to minimize the standard error of the estimate (unexplained variation); (b) getting a good match of characteristics between the properties analyzed and those the analysis is applied to; (c) obtaining a large and diverse sample; and (d) making adjustments for factors that are significant in explaining variation. Ideal samples may not always be available in the market; and the market search may be limited (like an appraisal) because of time and budget constraints.
3. Administrative considerations recognize that Government housing is usually not located in established communities, and that physical characteristics (such as in historical houses, one-room cabins, lookouts or dormitories) are difficult to match in the market. Government quarters are often found in areas influenced by tourism or boom/bust natural resource development that may produce unreasonable rents. Consistency and relative reasonableness, as well as time and budget constraints must also be taken into consideration.
4. While trade-offs among these three considerations may result in a less than ideal application of any one of the three principles, the goal is still to produce "reasonable" Monthly Base Rental Rates (MBRR) for quarters that are relatively consistent with the local market rents for similar housing, internally consistent and logical from one unit to another, and represent reasonable value to the employee.

B. MULTIPLE REGRESSION PROCEDURES USED IN RENTAL RATE COMPUTATIONS

There are several reasons for using the regional survey method to arrive at quarters rental rates. These include accuracy, consistency, fairness, cost effectiveness/economy, and the provision in OMB Circular A-45, that regional surveys are the preferred method.

Prior to the use of the regional survey method, quarters Monthly Base Rental Rates (MBRR's) were reset every five years by individually appraising each quarters unit. The appraisal process normally relied upon the use of a small number (2-4) of comparables for each subject Government quarters unit and made logical or market abstracted adjustments to each comparable. In many instances the same comparables were used to establish rental rates for several quarters. Thus the selection of comparables became critical. Individualized appraisals often led to inconsistencies among units in the same area. Many times different agencies, managing similar or identical housing units in the same area, had substantially different rents after analyzing the same rental market. Appraisers valuing several different units using separate sets of comparables and adjustments can also sometimes arrive at rents not logically related to one another. Finally, the appraisal process required a considerable amount of travel, and individualized writing, typing and editing of appraisal reports, which was expensive and very time consuming.

Alternatively, the regional survey method relies upon much larger samples of comparables. These are analyzed, statistically, to objectively determine those factors that are significant in explaining variations in the adjusted rent of each class of comparables. Each class of comparables (houses, apartments and mobile homes) is analyzed separately to determine which locations and physical characteristics are important in explaining the differences in rents among individual rental units and communities. The computer program independently and objectively determines the best set of characteristics (formula) to explain the rental pattern. This formula varies for each survey region and housing class.

The rental rates are based upon an analysis of regional data and local data. The rents in all surveyed communities for each housing class are tested for statistical significance. All significant negative location adjustments are applied to the quarters using that community as their nearest established community.

Positive location (community) adjustments are not applied; so Government housing units near high-rent communities are charged the typical rent for the region as a whole, rather than the typical rent for that high cost location.

The statistical process used is called forward in-and-out, step-wise multiple regression analysis. It takes all of the variables considered and forms a matrix or grid showing how every variable is related to every other variable (cross-correlation matrix). In this phase of the analysis, significant inventory items relating to the dwelling structure are coded into the computer as variables to be tested for their impact, if any, on rent. The variable to be explained (in this case rent) is called the dependent variable, because its value is determined by that of the other (independent) variables.

In forward in-and-out step-wise multiple regression analysis, the independent variable that explains the most variation in the dependent variable (rent) is selected first by the computer and entered as Step 1. The remaining variation is then recomputed, and the independent variable that explains the largest portion of the remaining variation is selected by the computer and entered as Step 2. As each new variable is added, the

coefficients of all the previously entered variables are recomputed to take into account relationships among the independent variables. If a previously entered variable no longer meets the test of significance, it is removed.

As this procedure uses the variation squared, it is highly sensitive to cases with extreme variations from the norm. Since the purpose of a regional survey is to find the typical rent for housing with certain characteristics, it is useful (and mandatory) to cull comparables with unusually high or low rents that are apparently unrelated to their characteristics. Such non-conforming rentals tend to obscure the typical pattern. To accomplish this culling, the following steps are normally taken.

Step 1. A listing of all the comparables is checked to see that the program has proper decodes, that no rental has been entered twice, and that the data is complete for each variable to be tested. The range for each rent class is also checked.

Step 2. Regression Run 1 (square foot base formula): The purified data base is analyzed for the best fit of adjusted rent versus square feet and the logarithm of square feet. This comparison is undertaken because square footage in buildings is generally the variable that explains the most variation of adjusted rent. It is also a universal variable (one that applies to all cases) and a continuous variable (one that changes in many small increments).

Step 3. A listing is produced which shows by community the rent/predicted rent ratio of each private rental sample. The predicted rent is one computed using the square foot base formula derived in step 2. The purpose of this listing is to screen out individual rentals whose ratios are far out of line relative to other rental comparables in the same community.

Step 4. A scattergram of rentals for each class, showing adjusted rent by square feet, is produced to visually display the data. These scattergrams, and the listings produced in Step 3, above, are used to remove samples with unusually high or low rents in each size grouping. A separate variable for each of the remaining communities is then entered into the next step, the full regression analysis, to see if it has a statistically significant location adjustment after other adjustments have been made. This run and a crosstab run of physical features allows for selection of other variables that are significantly represented and widely (geographically) distributed. These variables are turned into dummy (yes/no) and combination variables. Continuous and discrete variables are entered as simple variables, logarithmic transformations, and in logical combinations.

Step 5. (First Full Regression Run). The screened samples for each housing class to be analyzed, along with the variables to be tested, are analyzed to find coefficients for the significant variables. The results are checked for logic and cross-correlation; normally only one form of a variable is allowed to stay in the equation. Variables with illogical results are checked to find reasons for such deviation from expected results. Such variables are normally dropped from subsequent regression runs. Sometimes the samples containing such variables are culled; however, that action (culling samples) is uncommon.

Step 6. (Other Full Regression Runs). The full regression analysis is rerun without the illogical variables and/or dropped cases. If the end results look reasonable, the coefficients determined by regression analysis are used to compute Monthly Base Rental Rates (MBRR's) for individual Government-furnished quarters.

Step 7. (Predicted Rent Tables). The coefficients of each satisfactory regression run are put into a computer program which produces a table of predicted quarters MBRR's. The base values and all possible combinations of adjustments are reviewed to ensure the results are reliable for the full range of values. If not, the cause of the problem is diagnosed and corrected, and the regression analysis is rerun, producing a revised set of coefficients. Then Step 6 is repeated, and a new set of rent tables is produced.

V. ESTABLISHMENT OF MONTHLY BASE RENTAL RATES (MBRR)

A. USE OF BASE RENT CHARTS

Although rental computations have been automated, producing Monthly Base Rental Rates (MBRR's) and final Net Rents for most quarters, housing managers should understand the methodology used in determining the rental rates. Therefore, a set of charts has been prepared to allow the manual computation of the MBRR's for each class of rental housing. The charts have been constructed as size/age tables for the three major categories of housing (houses, apartments and mobile homes). By knowing the gross square feet of the livable area (size), the age, and the housing class of a building being used as quarters, one can determine the base rent from the proper table. The charts also contain columns and/or footnotes of rent adjustments which modify the rent from the size/age table to produce a MBRR for an individual quarters unit. **The value of one refrigerator and one stove is included in the rents listed in Tables 3a-d, 4a-d and 5a-c.** Therefore, if the Government does not provide a refrigerator or a range in the quarters, the value of each non-provided appliance should be subtracted from the monthly rent. The current values of a refrigerator and range are shown in Table 18 of this report, and may be adjusted annually by the QMIS Program Office to reflect changes in the Consumer Price Index (CPI) which may occur following the issuance of this report. In selecting the appropriate rent table, it is important to remember that the **design of the quarters, not its use, determines its category.** Thus, a house or an apartment unit **designed** to be occupied by an individual or a family, but which is actually used to house unrelated individuals, would be valued by the category for which it was designed to be used, rather than as a bunkhouse/dormitory. Where, however, a structure is not designed for occupancy by an individual, or family, or has been substantially modified to house individuals on a dormitory basis, it would be appropriate to apply bunkhouse/dormitory rates. Thus, an unmodified three-bedroom house with a **planned occupancy** of six unrelated individuals (normally two persons per bedroom) would have a rental rate determined by calculating the rental rate for a three-bedroom house and then dividing that rate by six. This rate would change if the number of **planned** occupants changed. If the house were later **structurally modified** to be used as a bunkhouse/dormitory, the rate then would be the dormitory rate.

Based upon information provided by the contractor, deductions from the monthly contract rental rate of each rental sample were made for the contributory costs of utilities, appliances, furnishings and services, provided and included in the contract rent. No deductions were made for central air conditioners, refrigerators or ranges; however, if a refrigerator or range was missing, the value was added to the adjusted rent. Central air conditioners are valued at their contributory value, if any. The resulting adjusted monthly contract rental rate represents the contributory value of the dwelling structure equipped with a refrigerator and a range.

The establishment of final monthly quarters rental charges for houses, apartments, mobile homes and cabins/lookouts requires the addition of charges for Government-provided utilities, services, appliances and furnishings. Conversely, **deductions** are required for the values of ranges and refrigerators when they are not provided by the Government.

There are a total of eleven rental rate charts: four charts for single-family housing, four charts for apartments, and three charts for mobile homes. Instructions for computing rental rates for cabins, bunkhouses and dormitories, transient quarters and trailer spaces are found in Sections V.E, V.F, V.G and V.H, respectively. Because OMB Circular A-45 excludes tents from the definition of "rental quarters," there is no charge for the provision of tents.

The use of the charts is fairly simple. First, find the chart for the category into which the GFQ fits. Next, round the square feet **down** to the nearest hundreds of square feet. Thus, if a unit has 980 square feet, the row labeled 900 SQFT would be used. Then the age should be rounded **up** to the nearest age increment. If the dwelling at issue was built in 1979, its age would be computed as 2002 (the current year) minus 1979 (the year built). Thus, in this instance, the unit is $2002 - 1979 = 23$ years old; and the column headed by "25 YEARS OLD" should then be followed down to the 900 SQFT row to obtain the size/age adjusted rent.

The rent charts also have various location adjustments, as well as adjustments for physical features such as the number of bathrooms, the type of garage facilities, the condition of the housing, etc. These should be subtracted from, or added to, the size/age adjusted rent, as specified, to determine the MBRR.

When computing the final biweekly rent (net rent) to be paid, the MBRR must be adjusted to include the value of Government-provided related facilities (utilities, appliances, furnishings and services); and the administrative adjustments prescribed in OMB Circular A-45. Use Form DI 1880, Rent Computation Schedule, or similar form as may be used by agencies other than DOI.

Where a dwelling is larger than the highest square footage in the chart pertinent to that unit, use the size/age rent and adjustments of the bottom (largest SQFT) row. This may eliminate the need for some administrative adjustments due to excess size of the housing. If a dwelling is smaller than the smallest square footage, use the lowest square footage listed on the chart.

The rent for a dwelling with more than 4 bedrooms (3 bedrooms for apartments and mobile homes) is calculated as if the unit had 4 bedrooms (3 bedrooms for apartments and mobile homes). In addition, the carport charge is the same regardless of the size of the carport; and the fireplace charge is the same for one or more fireplaces. For rental calculation purposes a "cap" of 3 bathrooms applies. Therefore, assume 3 bathrooms when applying the bathrooms charge in the rent charts shown in tables 3a-d, 4a-d and 5a-c.

To assist in the calculation of quarters MBRR's, examples are provided in the following pages. While the rates appearing in the following tables should allow you to establish MBRR's for essentially all of your properties, we recognize that we might not have anticipated all situations and conditions. Therefore, housing managers should use professional discretion to set rates for truly unusual situations. In cases where you must use some other method to establish rates, please notify the National Business Center, Products &

Services, Quarters Operations Office via telephone **303-969-7240** or fax 303-969-7173. You should explain the conditions, the rate used, and your reasoning so that we may anticipate such circumstances in the future. You should retain the documentation for such actions in your files.

B. SINGLE FAMILY HOUSING

For single family detached houses, including plexed dwellings and townhouses, use the rental chart which appropriately describes the housing class and the number of bedrooms of the subject quarters. The charts for houses are in tables 3a through 3d.

Assume for example, a 3-bedroom, 1 1/2-bath house, that was built in 1972, and which has a 2-car garage, two fireplaces, a central refrigerated air conditioning system and 1,276 gross square feet of living space. The house, located near Saratoga, WY, is fair in both exterior and interior condition.

First, the chart for 3-bedroom, good condition, 1 bathroom, houses (Table 3b) should be located and used. These charts are baseline charts, which assume that each house is in good condition inside and outside and has one full bathroom. Therefore, if the house is in good condition inside and outside and has one bathroom, no additional computations are needed. If there is a deviation from either good inside or outside condition or there are less or more bathrooms than one, then the computations must be changed as discussed below. In the first step, Table 3b is selected as the proper chart for 3-bedroom houses. Next, the size (gross finished floor space) should be rounded **down** to the nearest 100 square feet (from 1,276 to 1,200 sqft). Under the column headed "**SQFT**," the figure 1,200 should be located. Further adjustments will be taken from this row.

Finally, the appropriate age column should be selected. The house in this example is $2002 - 1972 = 30$ years old. The age should be rounded **up** to the next highest age column, which, in this case, is the column headed "**35 YRS OLD**." Follow this column down to the 1,200 square feet row to obtain the size/age "Chart Rent" of \$548.

The first adjustment is the extra bathroom charge. Follow the column headed "**PER EXTRA BATHROOM**" down to the 1,200 SQFT row to find a charge of \$45 for a full extra bathroom. As the house in this example has only 1/2 of an extra bathroom, the adjustment is $\$45 \times .5$ (1/2 extra bathroom) = \$22.50. Add \$23.00 (rounded) to the rent.

The second and third adjustments are made for a fair exterior and a fair interior condition. Follow the column headed "**FAIR EXTERIOR/INTERIOR***" down to the 1,200 SQFT row. The amount reflects a deduction of \$15 for a house with a fair exterior **and** a deduction of \$15 for a house with a fair interior. Since both the exterior and interior are in fair condition, the total adjustment is \$-30.

The fourth adjustment is for the central refrigerated air conditioning system. Follow the column headed "A/C (REF)" down to the 1,200 SQFT row. The amount reflects an addition of \$43 for central refrigerated air conditioning.

The fifth adjustment is for a two-car garage. Follow the column headed "**GARAGE (PER CAR)**" down to the 1,200 SQFT row. \$33 should be charged for each car the garage is designed to accommodate. Since the house in this example has a 2-car garage, multiply the amount shown for one car (\$33) times 2 to reflect the value of a 2-car garage ($2 \times \$33 = \66). Add \$66 to the rent.

The sixth adjustment is made for the fireplace. Follow the column headed "**FIREPLACES**" down to the 1,200 SQFT row. The amount reflects an addition of \$30 for one or more fireplaces. Add \$30 to the rent for the fireplace.

The final adjustment is the community adjustment. The house in this example is located near Saratoga, WY. The notes beneath the table (see "**COMMUNITY ADJUSTMENTS**") reflect that Saratoga, WY receives an adjustment of -\$132. As instructed, subtract \$132 from the rent. Community adjustments are given only to communities in which the market rents are **lower** than the regional average level of rents. Communities not listed in the tables have rents, which are equal to or higher than the regional average rent and do not receive community adjustments.

In summary, the adjustments that produce the Monthly Base Rental Rate for the house used in this example are shown below.

Chart Rent (1,200 SQFT/35 yrs. old)	\$548.00
Extra Bath Adjustment (.5 X \$45 rounded)	+ 23.00
Fair Exterior Condition Adjustment	- 15.00
Fair Interior Condition Adjustment	- 15.00
Central Refrigerated Air Conditioning Adjustment.....	+ 43.00
Garage Adjustment (Per Car X \$33)	+ 66.00
Fireplace Adjustment	+ 30.00
Community Adjustment (Saratoga, WY).....	<u>- 132.00</u>
Monthly Base Rent.....	\$548.00

TABLE 3a

MONTHLY BASE RENT CHART-4 BDR, 1 BATH HOUSES

COLORADO/UTAH/WYOMING SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	A/C (REF)	GAR- AGE PER (CAR)	FIRE- PLACES	PLEX
700	\$585	\$546	\$526	\$513	\$503	\$494	\$481	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
800	\$602	\$564	\$544	\$531	\$520	\$512	\$499	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
900	\$620	\$582	\$562	\$548	\$538	\$530	\$517	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1000	\$637	\$599	\$579	\$566	\$555	\$547	\$534	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1100	\$655	\$617	\$597	\$583	\$573	\$565	\$552	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1200	\$673	\$634	\$614	\$601	\$591	\$582	\$569	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1300	\$690	\$652	\$632	\$619	\$608	\$600	\$587	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1400	\$708	\$670	\$650	\$636	\$626	\$618	\$605	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1500	\$725	\$687	\$667	\$654	\$643	\$635	\$622	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1600	\$743	\$705	\$685	\$671	\$661	\$653	\$640	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1700	\$761	\$722	\$702	\$689	\$679	\$670	\$657	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1800	\$778	\$740	\$720	\$707	\$696	\$688	\$675	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1900	\$796	\$758	\$738	\$724	\$714	\$706	\$693	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
2000	\$813	\$775	\$755	\$742	\$731	\$723	\$710	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
2100	\$831	\$793	\$773	\$759	\$749	\$741	\$728	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
2200	\$849	\$810	\$790	\$777	\$767	\$758	\$745	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
2300	\$866	\$828	\$808	\$795	\$784	\$776	\$763	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$35 CARPORT ADD \$20

COMMUNITY ADJUSTMENTS:

CORTEZ, CO.	-\$24;	CRAIG, CO.	-\$15;	DEL NORTE, CO.	-\$15;	RANGELY, CO.	-\$130;
SPRINGFIELD, CO.	-\$246;	MONTPELIER, ID.	-\$162;	ST. ANTHONY, ID.	-\$130;	LIVINGSTON, MT.	-\$14;
BELLE FOURCHE, SD.	-\$125;	CASTLE DALE, UT.	-\$160;	CEDAR CITY, UT.	-\$21;	BEAVER, UT.	-\$48;
DELTA, UT.	-\$128;	BLANDING, UT.	-\$175;	EPHRAIM, UT.	-\$107;	FILLMORE, UT.	-\$86;
KANAB, UT.	-\$92;	MANTI, UT.	-\$108;	MONTICELLO, UT.	-\$175;	PANGUITCH, UT.	-\$77;
PRICE, UT.	-\$91;	RICHFIELD, UT.	-\$86;	ROOSEVELT, UT.	-\$154;	TREMONTON, UT.	-\$31;
VERNAL, UT.	-\$111;	AFTON, WY.	-\$108;	CODY, WY.	-\$12;	GREYBULL, WY.	-\$197;
KEMMERER, WY.	-\$123;	LANDER, WY.	-\$37;	LOVELL, WY.	-\$136;	NEWCASTLE, WY.	-\$162;
RAWLINGS, WY.	-\$76;	RIVERTON, WY.	-\$62;	SARATOGA, WY.	-\$132		

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 3b

MONTHLY BASE RENT CHART-3 BDR, 1 BATH HOUSES

COLORADO/UTAH/WYOMING SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	A/C (REF)	GAR- AGE PER (CAR)	FIRE- PLACES	PLEX
500	\$527	\$489	\$469	\$456	\$445	\$437	\$424	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
600	\$541	\$502	\$482	\$469	\$459	\$450	\$437	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
700	\$554	\$516	\$496	\$482	\$472	\$464	\$451	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
800	\$567	\$529	\$509	\$495	\$485	\$477	\$464	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
900	\$580	\$542	\$522	\$509	\$498	\$490	\$477	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1000	\$593	\$555	\$535	\$522	\$511	\$503	\$490	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1100	\$607	\$568	\$548	\$535	\$525	\$516	\$503	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1200	\$620	\$582	\$562	\$548	\$538	\$530	\$517	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1300	\$633	\$595	\$575	\$561	\$551	\$543	\$530	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1400	\$646	\$608	\$588	\$575	\$564	\$556	\$543	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1500	\$659	\$621	\$601	\$588	\$577	\$569	\$556	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1600	\$673	\$634	\$614	\$601	\$591	\$582	\$569	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1700	\$686	\$648	\$628	\$614	\$604	\$596	\$583	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1800	\$699	\$661	\$641	\$627	\$617	\$609	\$596	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1900	\$712	\$674	\$654	\$641	\$630	\$622	\$609	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
2000	\$725	\$687	\$667	\$654	\$643	\$635	\$622	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
2100	\$739	\$700	\$680	\$667	\$657	\$648	\$635	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$35 CARPORT ADD \$20

COMMUNITY ADJUSTMENTS:

CORTEZ, CO.	-\$24;	CRAIG, CO.	-\$15;	DEL NORTE, CO.	-\$15;	RANGELY, CO.	-\$130;
SPRINGFIELD, CO.	-\$246;	MONTPELIER, ID.	-\$162;	ST. ANTHONY, ID.	-\$130;	LIVINGSTON, MT.	-\$14;
BELLE FOURCHE, SD.	-\$125;	CASTLE DALE, UT.	-\$160;	CEDAR CITY, UT.	-\$21;	BEAVER, UT.	-\$48;
DELTA, UT.	-\$128;	BLANDING, UT.	-\$175;	EPHRAIM, UT.	-\$107;	FILLMORE, UT.	-\$86;
KANAB, UT.	-\$92;	MANTI, UT.	-\$108;	MONTICELLO, UT.	-\$175;	PANGUITCH, UT.	-\$77;
PRICE, UT.	-\$91;	RICHFIELD, UT.	-\$86;	ROOSEVELT, UT.	-\$154;	TREMONTON, UT.	-\$31;
VERNAL, UT.	-\$111;	AFTON, WY.	-\$108;	CODY, WY.	-\$12;	GREYBULL, WY.	-\$197;
KEMMERER, WY.	-\$123;	LANDER, WY.	-\$37;	LOVELL, WY.	-\$136;	NEWCASTLE, WY.	-\$162;
RAWLINGS, WY.	-\$76;	RIVERTON, WY.	-\$62;	SARATOGA, WY.	-\$132		

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 3c

MONTHLY BASE RENT CHART-2 BDR, 1 BATH HOUSES

COLORADO/UTAH/WYOMING SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	A/C (REF)	GAR- AGE PER (CAR)	FIRE- PLACES	PLEX
300	\$488	\$450	\$430	\$416	\$406	\$398	\$385	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
400	\$497	\$458	\$438	\$425	\$415	\$406	\$393	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
500	\$505	\$467	\$447	\$434	\$423	\$415	\$402	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
600	\$514	\$476	\$456	\$443	\$432	\$424	\$411	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
700	\$523	\$485	\$465	\$451	\$441	\$433	\$420	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
800	\$532	\$494	\$474	\$460	\$450	\$442	\$429	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
900	\$541	\$502	\$482	\$469	\$459	\$450	\$437	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1000	\$549	\$511	\$491	\$478	\$467	\$459	\$446	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1100	\$558	\$520	\$500	\$487	\$476	\$468	\$455	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1200	\$567	\$529	\$509	\$495	\$485	\$477	\$464	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1300	\$576	\$538	\$518	\$504	\$494	\$486	\$473	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1400	\$585	\$546	\$526	\$513	\$503	\$494	\$481	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1500	\$593	\$555	\$535	\$522	\$511	\$503	\$490	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1600	\$602	\$564	\$544	\$531	\$520	\$512	\$499	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1700	\$611	\$573	\$553	\$539	\$529	\$521	\$508	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1800	\$620	\$582	\$562	\$548	\$538	\$530	\$517	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1900	\$629	\$590	\$570	\$557	\$547	\$538	\$525	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$35 CARPORT ADD \$20

COMMUNITY ADJUSTMENTS:

CORTEZ, CO.	-\$24;	CRAIG, CO.	-\$15;	DEL NORTE, CO.	-\$15;	RANGELY, CO.	-\$130;
SPRINGFIELD, CO.	-\$246;	MONTPELIER, ID.	-\$162;	ST. ANTHONY, ID.	-\$130;	LIVINGSTON, MT.	-\$14;
BELLE FOURCHE, SD.	-\$125;	CASTLE DALE, UT.	-\$160;	CEDAR CITY, UT.	-\$21;	BEAVER, UT.	-\$48;
DELTA, UT.	-\$128;	BLANDING, UT.	-\$175;	EPHRAIM, UT.	-\$107;	FILLMORE, UT.	-\$86;
KANAB, UT.	-\$92;	MANTI, UT.	-\$108;	MONTICELLO, UT.	-\$175;	PANGUITCH, UT.	-\$77;
PRICE, UT.	-\$91;	RICHFIELD, UT.	-\$86;	ROOSEVELT, UT.	-\$154;	TREMONTON, UT.	-\$31;
VERNAL, UT.	-\$111;	AFTON, WY.	-\$108;	CODY, WY.	-\$12;	GREYBULL, WY.	-\$197;
KEMMERER, WY.	-\$123;	LANDER, WY.	-\$37;	LOVELL, WY.	-\$136;	NEWCASTLE, WY.	-\$162;
RAWLINGS, WY.	-\$76;	RIVERTON, WY.	-\$62;	SARATOGA, WY.	-\$132		

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 3d

MONTHLY BASE RENT CHART-1 BDR, 1BATH, HOUSES

COLORADO/UTAH/WYOMING SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	A/C (REF)	GAR- AGE PER (CAR)	FIRE- PLACES	PLEX
100	\$466	\$428	\$408	\$394	\$384	\$376	\$363	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
200	\$470	\$432	\$412	\$399	\$388	\$380	\$367	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
300	\$475	\$436	\$416	\$403	\$393	\$384	\$371	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
400	\$479	\$441	\$421	\$407	\$397	\$389	\$376	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
500	\$483	\$445	\$425	\$412	\$401	\$393	\$380	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
600	\$488	\$450	\$430	\$416	\$406	\$398	\$385	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
700	\$492	\$454	\$434	\$421	\$410	\$402	\$389	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
800	\$497	\$458	\$438	\$425	\$415	\$406	\$393	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
900	\$501	\$463	\$443	\$429	\$419	\$411	\$398	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1000	\$505	\$467	\$447	\$434	\$423	\$415	\$402	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1100	\$510	\$472	\$452	\$438	\$428	\$420	\$407	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1200	\$514	\$476	\$456	\$443	\$432	\$424	\$411	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1300	\$519	\$480	\$460	\$447	\$437	\$428	\$415	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1400	\$523	\$485	\$465	\$451	\$441	\$433	\$420	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89
1500	\$527	\$489	\$469	\$456	\$445	\$437	\$424	\$+45	\$+25	\$-15	\$-25	\$+43	\$+33	\$+30	\$-89

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$35 CARPORT ADD \$20

COMMUNITY ADJUSTMENTS:

CORTEZ, CO.	-\$24;	CRAIG, CO.	-\$15;	DEL NORTE, CO.	-\$15;	RANGELY, CO.	-\$130;
SPRINGFIELD, CO.	-\$246;	MONTPELIER, ID.	-\$162;	ST. ANTHONY, ID.	-\$130;	LIVINGSTON, MT.	-\$14;
BELLE FOURCHE, SD.	-\$125;	CASTLE DALE, UT.	-\$160;	CEDAR CITY, UT.	-\$21;	BEAVER, UT.	-\$48;
DELTA, UT.	-\$128;	BLANDING, UT.	-\$175;	EPHRAIM, UT.	-\$107;	FILLMORE, UT.	-\$86;
KANAB, UT.	-\$92;	MANTI, UT.	-\$108;	MONTICELLO, UT.	-\$175;	PANGUITCH, UT.	-\$77;
PRICE, UT.	-\$91;	RICHFIELD, UT.	-\$86;	ROOSEVELT, UT.	-\$154;	TREMONTON, UT.	-\$31;
VERNAL, UT.	-\$111;	AFTON, WY.	-\$108;	CODY, WY.	-\$12;	GREYBULL, WY.	-\$197;
KEMMERER, WY.	-\$123;	LANDER, WY.	-\$37;	LOVELL, WY.	-\$136;	NEWCASTLE, WY.	-\$162;
RAWLINGS, WY.	-\$76;	RIVERTON, WY.	-\$62;	SARATOGA, WY.	-\$132		

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

C. APARTMENTS

For all apartment units, use the rental chart which appropriately describes the housing class and the number of bedrooms of the subject quarters. The charts for apartments are in Tables 4a through 4d.

Assume a 2-bedroom, 2-bathroom apartment, near Steamboat Springs, CO with 760 square feet. The exterior is in poor condition; the interior is in fair condition. The apartment, which was built in 1957, is 45 years old (2002 - 1957), has a carport, and central refrigerated air conditioning.

First, the two-bedroom chart for good condition apartments (Table 4b) should be located and used. These charts are baseline charts, which assume that each apartment is in good condition inside and outside and has one full bathroom. Therefore, if the apartment is in good condition inside and outside and has one bathroom, no additional computations are needed. If there is a deviation from either good inside or outside condition or there are less or more bathrooms than one, then the computations must be changed as discussed below. In the first step, Table 4b is selected as the proper chart for 2-bedroom apartments.

In the second step the size (gross living area) is rounded **down** from 760 to 700 square feet. Under the column headed **"SQFT"** the figure 700 should be located. All further adjustments will be taken from this row.

In the third step the appropriate age column is selected. A 45-year old apartment is between 35 and 45 years old; therefore, the **"45 YRS OLD"** column should be used. A two-bedroom apartment, in good condition with 700 square feet of living space (gross), and which is 45 years of age, has a "Chart Rent" of \$345 per month.

The first adjustment is the extra bathroom adjustment charge. Following the 700 SQFT row along to the column headed **"PER EXTRA BATHROOM"** you will find a charge of \$39. To compute the charge for the extra bathroom, multiply 1 (1 extra bath) times \$39 (the extra bath charge). Add \$39 to the rent.

The second and third adjustments are for a poor exterior and a fair interior condition. Follow the 700 SQFT row across the table to the column headed **"POOR EXTERIOR/INTERIOR"** a deduction of \$20 is shown; and in the next column titled **"FAIR EXTERIOR/INTERIOR"**, a deduction of \$15 is shown. Subtract from the rent \$20 for poor exterior condition, and \$15 for fair interior condition.

The fourth adjustment is for a carport. Beneath the table, under **"STRUCTURAL ADJUSTMENTS"**, there is an instruction to add \$20 for a carport of any size. As instructed add \$20 to the rent of this apartment.

The fifth adjustment is for central refrigerated air conditioning. Beneath the table, under **"STRUCTURAL ADJUSTMENTS,"** there is an instruction to add \$40 for Central Refrigerated Air Conditioning.

The final adjustment is the community adjustment. The apartment in this example is located near Steamboat Springs, CO. The notes beneath the table (see **"COMMUNITY ADJUSTMENTS"**) show no adjustment for Steamboat Springs, CO. Therefore, rental values in Steamboat Springs, CO for apartments

are equal to or greater than the regional average. Since positive community adjustments are not applied, no community adjustment is shown for Steamboat Springs, CO.

The last step is to round the resulting MBRR (Monthly Base Rental Rate) to the nearest whole dollar. Any amount resulting in an amount of \$.50 or greater is rounded up; any amount resulting in an amount of \$.49 or less is rounded down. The decision to round is discretionary.

In summary, the Monthly Base Rental Rate for the apartment in this example is determined as follows:

Chart Rent (700 SQFT/45 years old)	\$345.00
Extra Bath Adjustment (1 X \$39)	+39.00
Poor Exterior Adjustment	-20.00
Fair Interior Adjustment	-15.00
Carport Adjustment	+20.00
Central Refrigerated Air Conditioning Adjustment	+40.00
Location Adjustment (Steamboat Springs, CO)	<u>- 00.00</u>
Monthly Base Rental Rate	\$409.00

TABLE 4a

MONTHLY BASE RENT CHART-3 BDR, 1 BATH APARTMENTS

COLORADO/UTAH/WYOMING SURVEY REGION												
SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)
600	\$440	\$418	\$407	\$399	\$393	\$388	\$380	\$+33	\$+20	\$-15	\$-20	\$+38
700	\$446	\$424	\$412	\$404	\$398	\$393	\$386	\$+39	\$+20	\$-15	\$-20	\$+38
800	\$451	\$429	\$418	\$410	\$404	\$399	\$391	\$+44	\$+20	\$-15	\$-20	\$+38
900	\$457	\$435	\$423	\$415	\$409	\$404	\$397	\$+50	\$+20	\$-15	\$-20	\$+38
1000	\$462	\$440	\$429	\$421	\$415	\$410	\$402	\$+55	\$+20	\$-15	\$-20	\$+38
1100	\$468	\$446	\$434	\$426	\$420	\$415	\$408	\$+61	\$+20	\$-15	\$-20	\$+38
1200	\$473	\$451	\$440	\$432	\$426	\$421	\$413	\$+66	\$+20	\$-15	\$-20	\$+38
1300	\$479	\$457	\$445	\$437	\$431	\$426	\$419	\$+72	\$+20	\$-15	\$-20	\$+38
1400	\$484	\$462	\$451	\$443	\$437	\$432	\$424	\$+77	\$+20	\$-15	\$-20	\$+38
1500	\$490	\$468	\$456	\$448	\$442	\$437	\$430	\$+83	\$+20	\$-15	\$-20	\$+38
1600	\$495	\$473	\$462	\$454	\$448	\$443	\$435	\$+88	\$+20	\$-15	\$-20	\$+38
1700	\$501	\$479	\$467	\$459	\$453	\$448	\$441	\$+94	\$+20	\$-15	\$-20	\$+38
1800	\$506	\$484	\$473	\$465	\$459	\$454	\$446	\$+99	\$+20	\$-15	\$-20	\$+38

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CARPORT (ANY SIZE): ADD \$20
 FIREPLACE(S): ADD \$20

CENTRAL REFRIGERATED AIR CONDITIONING ADD \$40
 CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$25

COMMUNITY ADJUSTMENTS:

ST. ANTHONY, ID. -\$18; BEAVER, UT. -\$14; BLANDING, UT. -\$41; FILLMORE, UT. -\$35;
 HURRICANE, UT. -19; MONTICELLO, UT. -\$41; RICHFIELD, UT. -\$35; VERNAL, UT. -\$29;
 KEMMERER, WY. -\$105

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 4b

MONTHLY BASE RENT CHART- 2 BDR, 1 BATH APARTMENTS

COLORADO/UTAH/WYOMING SURVEY REGION												
SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)
400	\$376	\$354	\$343	\$335	\$329	\$324	\$316	\$+22	\$+20	\$-15	\$-20	\$+38
500	\$382	\$360	\$348	\$340	\$334	\$329	\$322	\$+28	\$+20	\$-15	\$-20	\$+38
600	\$387	\$365	\$354	\$346	\$340	\$335	\$327	\$+33	\$+20	\$-15	\$-20	\$+38
700	\$393	\$371	\$359	\$351	\$345	\$340	\$333	\$+39	\$+20	\$-15	\$-20	\$+38
800	\$398	\$376	\$365	\$357	\$351	\$346	\$338	\$+44	\$+20	\$-15	\$-20	\$+38
900	\$404	\$382	\$370	\$362	\$356	\$351	\$344	\$+50	\$+20	\$-15	\$-20	\$+38
1000	\$409	\$387	\$376	\$368	\$362	\$357	\$349	\$+55	\$+20	\$-15	\$-20	\$+38
1100	\$415	\$393	\$381	\$373	\$367	\$362	\$355	\$+61	\$+20	\$-15	\$-20	\$+38
1200	\$420	\$398	\$387	\$379	\$373	\$368	\$360	\$+66	\$+20	\$-15	\$-20	\$+38
1300	\$426	\$404	\$392	\$384	\$378	\$373	\$366	\$+72	\$+20	\$-15	\$-20	\$+38
1400	\$431	\$409	\$398	\$390	\$384	\$379	\$371	\$+77	\$+20	\$-15	\$-20	\$+38
1500	\$437	\$415	\$403	\$395	\$389	\$384	\$377	\$+83	\$+20	\$-15	\$-20	\$+38
1600	\$442	\$420	\$409	\$401	\$395	\$390	\$382	\$+88	\$+20	\$-15	\$-20	\$+38

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CARPORT (ANY SIZE): ADD \$20
 FIREPLACE(S): ADD \$20

CENTRAL REFRIGERATED AIR CONDITIONING ADD \$40
 CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$25

COMMUNITY ADJUSTMENTS:

ST. ANTHONY, ID. -\$18; BEAVER, UT. -\$14; BLANDING, UT. -\$41; FILLMORE, UT. -\$35;
 HURRICANE, UT. -19; MONTICELLO, UT. -\$41; RICHFIELD, UT. -\$35; VERNAL, UT. -\$29;
 KEMMERER, WY. -\$105

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 4c

MONTHLY BASE RENT CHART-1 BDR, 1 BATH APARTMENTS

COLORADO/UTAH/WYOMING SURVEY REGION												
SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)
300	\$318	\$296	\$284	\$276	\$270	\$265	\$258	\$+17	\$+20	\$-15	\$-20	\$+38
400	\$323	\$301	\$290	\$282	\$276	\$271	\$263	\$+22	\$+20	\$-15	\$-20	\$+38
500	\$329	\$307	\$295	\$287	\$281	\$276	\$269	\$+28	\$+20	\$-15	\$-20	\$+38
600	\$334	\$312	\$301	\$293	\$287	\$282	\$274	\$+33	\$+20	\$-15	\$-20	\$+38
700	\$340	\$318	\$306	\$298	\$292	\$287	\$280	\$+39	\$+20	\$-15	\$-20	\$+38
800	\$345	\$323	\$312	\$304	\$298	\$293	\$285	\$+44	\$+20	\$-15	\$-20	\$+38
900	\$351	\$329	\$317	\$309	\$303	\$298	\$291	\$+50	\$+20	\$-15	\$-20	\$+38
1000	\$356	\$334	\$323	\$315	\$309	\$304	\$296	\$+55	\$+20	\$-15	\$-20	\$+38
1100	\$362	\$340	\$328	\$320	\$314	\$309	\$302	\$+61	\$+20	\$-15	\$-20	\$+38
1200	\$367	\$345	\$334	\$326	\$320	\$315	\$307	\$+66	\$+20	\$-15	\$-20	\$+38
1300	\$373	\$351	\$339	\$331	\$325	\$320	\$313	\$+72	\$+20	\$-15	\$-20	\$+38
1400	\$378	\$356	\$345	\$337	\$331	\$326	\$318	\$+77	\$+20	\$-15	\$-20	\$+38
1500	\$384	\$362	\$350	\$342	\$336	\$331	\$324	\$+83	\$+20	\$-15	\$-20	\$+38

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CARPORT (ANY SIZE): ADD \$20
 FIREPLACE(S): ADD \$20

CENTRAL REFRIGERATED AIR CONDITIONING ADD \$40
 CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$25

COMMUNITY ADJUSTMENTS:

ST. ANTHONY, ID. -\$18; BEAVER, UT. -\$14; BLANDING, UT. -\$41; FILLMORE, UT. -\$35;
 HURRICANE, UT. -19; MONTICELLO, UT. -\$41; RICHFIELD, UT. -\$35; VERNAL, UT. -\$29;
 KEMMERER, WY. -\$105

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 4d

MONTHLY BASE RENT CHART-0 BDR, 1 BATH APARTMENTS

COLORADO/UTAH/WYOMING SURVEY REGION												
SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)
100	\$254	\$232	\$220	\$212	\$206	\$201	\$194	\$+6	\$+20	\$-15	\$-20	\$+38
200	\$259	\$237	\$226	\$218	\$212	\$207	\$199	\$+11	\$+20	\$-15	\$-20	\$+38
300	\$265	\$243	\$231	\$223	\$217	\$212	\$205	\$+17	\$+20	\$-15	\$-20	\$+38
400	\$270	\$248	\$237	\$229	\$223	\$218	\$210	\$+22	\$+20	\$-15	\$-20	\$+38
500	\$276	\$254	\$242	\$234	\$228	\$223	\$216	\$+28	\$+20	\$-15	\$-20	\$+38
600	\$281	\$259	\$248	\$240	\$234	\$229	\$221	\$+33	\$+20	\$-15	\$-20	\$+38
700	\$287	\$265	\$253	\$245	\$239	\$234	\$227	\$+39	\$+20	\$-15	\$-20	\$+38
800	\$292	\$270	\$259	\$251	\$245	\$240	\$232	\$+44	\$+20	\$-15	\$-20	\$+38
900	\$298	\$276	\$264	\$256	\$250	\$245	\$238	\$+50	\$+20	\$-15	\$-20	\$+38
1000	\$303	\$281	\$270	\$262	\$256	\$251	\$243	\$+55	\$+20	\$-15	\$-20	\$+38
1100	\$309	\$287	\$275	\$267	\$261	\$256	\$249	\$+61	\$+20	\$-15	\$-20	\$+38

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CARPORT (ANY SIZE): ADD \$20
 FIREPLACE(S): ADD \$20

CENTRAL REFRIGERATED AIR CONDITIONING ADD \$40
 CENTRAL EVAPORATIVE AIR CONDITIONING ADD \$25

COMMUNITY ADJUSTMENTS:

ST. ANTHONY, ID. -\$18; BEAVER, UT. -\$14; BLANDING, UT. -\$41; FILLMORE, UT. -\$35;
 HURRICANE, UT. -19; MONTICELLO, UT. -\$41; RICHFIELD, UT. -\$35; VERNAL, UT. -\$29;
 KEMMERER, WY. -\$105

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

D. MOBILE HOMES, TRAVEL TRAILERS, AND HOUSEBOATS

For these housing classes, use the mobile home base rental charts (Tables 5a-c). To familiarize the reader with these charts, assume a 490 square foot, 1-bedroom mobile home built in 1967 with a 3/4 bathroom. This mobile home is in poor interior and poor exterior condition and is located near Greybull, WY. The Monthly Base Rental Rate for the mobile home in this example is calculated from Table 5c as follows.

The 1-bedroom chart for good condition mobile homes (Table 5c) should be located and used. This chart is a baseline chart, which assumes that each mobile home is in good condition inside and outside and has one full bathroom. Therefore, if the mobile home is in good condition inside and outside and has one full bathroom, no additional computations are needed. If there is a deviation from either good inside or outside condition or there are less or more bathrooms than one, then the computations must be changed accordingly.

First, locate the table for mobile homes in good condition with *one full bathroom* (Table 5c). Next, the gross square feet of living area should be rounded down to 400 square feet, and the **age** ($2002 - 1967 = 35$ years) is rounded **up** to 35+ years. The column headed **"SQFT"** is followed **down** to 400. All other adjustments are taken from this row. On this row, under the column headed **"35+ YRS OLD,"** the "Chart Rent" is \$271.

The base rental value of \$271 (computed above) includes the value of one full bathroom. Since the unit in this example has only a 3/4 bathroom, an adjustment must be made for the missing 1/4 bathroom. At the top of the table is a column titled **"PER EXTRA BATHROOM."** Follow this column down to the 400 SQFT row. A value of \$32 is shown. Multiply this value times .25 (1/4 bathroom) to calculate the value of the missing 1/4 bathroom ($\$32 \times .25 = \8.00). Subtract \$8.00 from the rent.

The second and third adjustments are for the condition of the unit. Follow the 400 SQFT row to the column headed **"POOR EXTERIOR/INTERIOR*"**; subtract \$15 for the poor exterior condition and another \$15 for the poor interior condition.

The final adjustment is the community adjustment. The mobile home in this example is located near Greybull, WY. The notes beneath the table (see **"COMMUNITY ADJUSTMENTS"**) show an adjustment of -\$227 for Greybull, WY. The rental values for mobile homes in Greybull, WY are much lower than the survey area average. The rent for mobile homes which use Greybull, WY as the nearest established community should be reduced by \$227.

The Monthly Base Rental Rate for this mobile home is shown below.

Chart Rent (400 SQFT/35+ years old)	\$271.00
Bathroom Adjustment (.25 X \$32)	- 8.00
Poor Exterior	- 15.00
Poor Interior	- 15.00
Location Adjustment (Greybull, WY).....	<u>- 227.00</u>
Computed Monthly Base Rental Rate.....	\$6.00
Computed Monthly Base Rental Rate (Rounded)	\$6.00
Actual Monthly Base Rental Rate (Minimum Base).....	\$165.00

Note: In this example, the Monthly Base Rental Rate computes to \$6.00, which is less than the \$165.00 minimum Monthly Base Rental Rate for the Colorado/Utah/Wyoming Survey Region (refer to the footnotes on each rent table for the minimum base rent). Therefore, the Monthly Base Rental Rate for the mobile home in this example will be set at \$165.00. Keep in mind that the *Monthly Base Rental Rate* is different from the minimum monthly *final rent*. Thus, \$165.00 is not the minimum final rent possible.

TABLE 5a

MONTHLY BASE RENT CHART-3 BDR, 1 BATH MOBILE HOMES

COLORADO/UTAH/WYOMING SURVEY REGION

SQFT	5 YRS OLD	10 YRS OLD	15 YRS OLD	20 YRS OLD	25 YRS OLD	30 YRS OLD	35+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER- IOR/ INTER- IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*
400	\$385	\$368	\$357	\$349	\$342	\$337	\$332	\$+32	\$+10	\$-10	\$-15
500	\$401	\$384	\$373	\$365	\$358	\$353	\$348	\$+32	\$+10	\$-10	\$-15
600	\$417	\$400	\$389	\$381	\$374	\$369	\$364	\$+32	\$+10	\$-10	\$-15
700	\$433	\$416	\$405	\$397	\$390	\$385	\$380	\$+32	\$+10	\$-10	\$-15
800	\$449	\$432	\$421	\$413	\$406	\$401	\$396	\$+32	\$+10	\$-10	\$-15
900	\$465	\$448	\$437	\$429	\$422	\$417	\$412	\$+32	\$+10	\$-10	\$-15
1000	\$481	\$464	\$453	\$445	\$438	\$433	\$428	\$+32	\$+10	\$-10	\$-15
1100	\$497	\$480	\$469	\$461	\$454	\$449	\$444	\$+32	\$+10	\$-10	\$-15
1200	\$513	\$496	\$485	\$477	\$470	\$465	\$460	\$+32	\$+10	\$-10	\$-15
1300	\$529	\$512	\$501	\$493	\$486	\$481	\$476	\$+32	\$+10	\$-10	\$-15
1400	\$545	\$528	\$517	\$509	\$502	\$497	\$492	\$+32	\$+10	\$-10	\$-15
1500	\$561	\$544	\$533	\$525	\$518	\$513	\$508	\$+32	\$+10	\$-10	\$-15
1600	\$577	\$560	\$549	\$541	\$534	\$529	\$524	\$+32	\$+10	\$-10	\$-15

STRUCTURAL ADJUSTMENTS:

GARAGE (ANY SIZE):	ADD	\$70
CARPORT (ANY SIZE):	ADD	\$60
CENTRAL REFRIGERATED AIR CONDITIONING	ADD	\$43
CENTRAL EVAPORATIVE AIR CONDITIONING	ADD	\$18

COMMUNITY ADJUSTMENTS:

ALAMOSA, CO	-\$116;	DEL NORTE, CO	-\$28;	MONTPELIER, ID.	-\$174;	ST. ANTHONY, ID.	-\$161;
LIVINGSTON, MT.	-\$44;	BLANDING, UT.	-\$194;	CEDAR CITY, UT.	-\$90;	FILLMORE, UT.	-\$70;
KANAB, UT.	-\$93;	MONTICELLO, UT.	-\$194;	PANGUITCH, UT.	-\$19;	PRICE, UT.	-\$128;
RICHFIELD, UT.	-\$70;	ROOSEVELT, UT.	-\$74;	VERNAL, UT.	-\$75;	CODY, WY.	-\$94;
EVANSTON, WY.	-\$92;	GREYBULL, WY.	-\$227;	KEMMERER, WY.	-\$95;	LOVELL, WY.	-\$192;
RAWLINS, WY	-\$118;	RIVERTON, WY.	-\$62				

* - IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 5b

MONTHLY BASE RENT CHART-2 BDR, 1 BATH MOBILE HOMES

SQFT	COLORADO/UTAH/WYOMING SURVEY REGION								FAIR		
	5 YRS OLD	10 YRS OLD	15 YRS OLD	20 YRS OLD	25 YRS OLD	30 YRS OLD	35+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER- IOR/ INTER- IOR*	EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*
400	\$359	\$341	\$330	\$322	\$316	\$310	\$305	\$+32	\$+10	\$-10	\$-15
500	\$375	\$357	\$346	\$338	\$332	\$326	\$321	\$+32	\$+10	\$-10	\$-15
600	\$391	\$373	\$362	\$354	\$348	\$342	\$337	\$+32	\$+10	\$-10	\$-15
700	\$407	\$389	\$378	\$370	\$364	\$358	\$353	\$+32	\$+10	\$-10	\$-15
800	\$423	\$405	\$394	\$386	\$380	\$374	\$369	\$+32	\$+10	\$-10	\$-15
900	\$439	\$421	\$410	\$402	\$396	\$390	\$385	\$+32	\$+10	\$-10	\$-15
1000	\$455	\$437	\$426	\$418	\$412	\$406	\$401	\$+32	\$+10	\$-10	\$-15
1100	\$471	\$453	\$442	\$434	\$428	\$422	\$417	\$+32	\$+10	\$-10	\$-15
1200	\$487	\$469	\$458	\$450	\$444	\$438	\$433	\$+32	\$+10	\$-10	\$-15
1300	\$503	\$485	\$474	\$466	\$460	\$454	\$449	\$+32	\$+10	\$-10	\$-15
1400	\$519	\$501	\$490	\$482	\$476	\$470	\$465	\$+32	\$+10	\$-10	\$-15
1500	\$535	\$517	\$506	\$498	\$492	\$486	\$481	\$+32	\$+10	\$-10	\$-15

STRUCTURAL ADJUSTMENTS:

GARAGE (ANY SIZE):	ADD	\$70
CARPORT (ANY SIZE):	ADD	\$60
CENTRAL REFRIGERATED AIR CONDITIONING	ADD	\$43
CENTRAL EVAPORATIVE AIR CONDITIONING	ADD	\$18

COMMUNITY ADJUSTMENTS:

ALAMOSA, CO	-\$116;	DEL NORTE, CO	-\$28;	MONTPELIER, ID.	-\$174;	ST. ANTHONY, ID.	-\$161;
LIVINGSTON, MT.	-\$44;	BLANDING, UT.	-\$194;	CEDAR CITY, UT.	-\$90;	FILLMORE, UT.	-\$70;
KANAB, UT.	-\$93;	MONTICELLO, UT.	-\$194;	PANGUITCH, UT.	-\$19;	PRICE, UT.	-\$128;
RICHFIELD, UT.	-\$70;	ROOSEVELT, UT.	-\$74;	VERNAL, UT.	-\$75;	CODY, WY.	-\$94;
EVANSTON, WY.	-\$92;	GREYBULL, WY.	-\$227;	KEMMERER, WY.	-\$95;	LOVELL, WY.	-\$192;
RAWLINS, WY	-\$118;	RIVERTON, WY.	-\$62				

* - IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 5c

MONTHLY BASE RENT CHART-1 BDR, 1 BATH MOBILE HOMES

COLORADO/UTAH/WYOMING SURVEY REGION											
SQFT	5 YRS OLD	10 YRS OLD	15 YRS OLD	20 YRS OLD	25 YRS OLD	30 YRS OLD	35+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER- IOR/ INTER- IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*
100	\$276	\$259	\$248	\$240	\$233	\$228	\$223	\$+32	\$+10	\$-10	\$-15
200	\$292	\$275	\$264	\$256	\$249	\$244	\$239	\$+32	\$+10	\$-10	\$-15
300	\$308	\$291	\$280	\$272	\$265	\$260	\$255	\$+32	\$+10	\$-10	\$-15
400	\$324	\$307	\$296	\$288	\$281	\$276	\$271	\$+32	\$+10	\$-10	\$-15
500	\$340	\$323	\$312	\$304	\$297	\$292	\$287	\$+32	\$+10	\$-10	\$-15
600	\$356	\$339	\$328	\$320	\$313	\$308	\$303	\$+32	\$+10	\$-10	\$-15
700	\$372	\$355	\$344	\$336	\$329	\$324	\$319	\$+32	\$+10	\$-10	\$-15
800	\$388	\$371	\$360	\$352	\$345	\$340	\$335	\$+32	\$+10	\$-10	\$-15
900	\$404	\$387	\$376	\$368	\$361	\$356	\$351	\$+32	\$+10	\$-10	\$-15
1000	\$420	\$403	\$392	\$384	\$377	\$372	\$367	\$+32	\$+10	\$-10	\$-15
1100	\$436	\$419	\$408	\$400	\$393	\$388	\$383	\$+32	\$+10	\$-10	\$-15
1200	\$452	\$435	\$424	\$416	\$409	\$404	\$399	\$+32	\$+10	\$-10	\$-15

STRUCTURAL ADJUSTMENTS:

GARAGE (ANY SIZE):	ADD	\$70
CARPORT (ANY SIZE):	ADD	\$60
CENTRAL REFRIGERATED AIR CONDITIONING	ADD	\$43
CENTRAL EVAPORATIVE AIR CONDITIONING	ADD	\$18

COMMUNITY ADJUSTMENTS:

ALAMOSA, CO	-\$116;	DEL NORTE, CO	-\$28;	MONTPELIER, ID.	-\$174;	ST. ANTHONY, ID.	-\$161;
LIVINGSTON, MT.	-\$44;	BLANDING, UT.	-\$194;	CEDAR CITY, UT.	-\$90;	FILLMORE, UT.	-\$70;
KANAB, UT.	-\$93;	MONTICELLO, UT.	-\$194;	PANGUITCH, UT.	-\$19;	PRICE, UT.	-\$128;
RICHFIELD, UT.	-\$70;	ROOSEVELT, UT.	-\$74;	VERNAL, UT.	-\$75;	CODY, WY.	-\$94;
EVANSTON, WY.	-\$92;	GREYBULL, WY.	-\$227;	KEMMERER, WY.	-\$95;	LOVELL, WY.	-\$192;
RAWLINS, WY	-\$118;	RIVERTON, WY.	-\$62				

* - IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS \$165 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

E. CABINS OR LOOKOUTS

For purposes of rental rate establishment, the rental housing class most comparable to cabins or lookouts would be 1-bedroom, single-family houses, regardless of the number of bedrooms in the cabin. One-bedroom, single-family rental houses generally consist of smaller and older housing units. Where the cabins or lookouts are outfitted for housekeeping, and contain an independent primary heating system, the rental rates (including all applicable adjustments) are determined by using the 1-bedroom house chart (i.e. Table 3d).

Where a cabin or lookout lacks full housekeeping facilities (including running water, an inside heated bathroom, or a central heating system), additional adjustments (shown below) must be made to the Monthly Base Rental Rate. A free standing stove without a fan, or a fireplace does not qualify as a central primary heating system. These adjustments are designed to take into consideration the inconvenience resulting from the lack of full housekeeping facilities. However, the adjusted monthly base rental rate may not be set below the minimum monthly base rent of \$165.

. No Electricity =	- 20%
. No Inside Bathroom =	- 20%
. No Running Water =	- 20%
. No Central Heating System =	- 15% (*)
. Less Than Two Rooms (One-Room Cabin or Lookout) =	- 10%

(*) Applied only if used during the heating season.

F. BUNKHOUSE AND DORMITORIES

Bunkhouses and dormitories should only include housing units that have been specifically constructed or modified for use as bunkhouses or dormitories. Single-family houses, apartments or mobile homes that are **used** as dormitories or bunkhouses, must be valued as what they are (houses, apartments or mobile homes), with the rent divided by the number of **planned** occupants (normally 2 per bedroom).

Dormitory or bunkhouse units typically lack either a living room or kitchen, or have common baths and kitchens serving many people. Many also have multiple bunk beds in large ward-like rooms. Such housing units pose a valuation problem, as they are normally found only in association with institutions such as the military or colleges, of which its occupants are members. Since these institutions do not typically rent to the public at large, one cannot obtain an arms-length market rent.

Under circumstances where there is a lack of comparable rental data, OMB Circular A-45 provides that rental rates may be established using an extension of the Principle of Comparability. Under this procedure, rental rates are established using the most comparable rental housing available, and the rate is essentially 50 percent of the average house rent.

During the February, 1994 National Quarters Conference, the National Quarters Council decided that one aggregate monthly rate should be established for **all** dormitories in a survey region. This aggregate dormitory rate, which includes the value of Government-provided utilities, furnishings and services, was determined as follows. An analysis of the comparables used in this survey found that the average single-family house had 1,140 square feet of finished floor space, 2.5 bedrooms and an average monthly adjusted contract rent of \$642. By applying an extension of the Principle of Comparability, the Base Shelter Rental Rate (BSRR) for bunkhouses and dormitories is calculated as shown below.

During the 2002 National Quarters Conference, the National Quarters Council reviewed different dormitory costing methods for the newer types of dormitories being built by some agencies. In researching new and existing dormitory models it was found the majority of the dormitories plan to house two occupants per room, which the current costing methodology is based upon. In addition, most occupants in dormitories share both a kitchen and bathroom. Based on these factors the Council decided to continue using the current costing methodology.

$$\text{Average adjusted contract rent} \times .5 = \$642 \times .5 = \$321.00$$

$$\$321.00 / (\text{average \# of bedrooms} \times 2 \text{ occupants per bedroom})$$

$$\$321.00 / (2.5 \text{ bedrooms} \times 2 \text{ occupants}) = \$321.00 / 5 = \$64.20 \text{ per month/per occupant.}$$

Charges were then added to this rate for utilities, services and furnishings that are provided by the Government. The aggregate value of these items was based on a study of the rates prevailing in the regional survey area. These charges were prorated based upon a 1,140 square foot, 2.5 bedroom, single-family house occupied by 2 people per bedroom. The aggregate charge for these related facilities is \$46.73.

Monthly, weekly, and daily bunkhouse and dormitory rates are computed as follows.

TABLE 6

BUNKHOUSE/DORMITORY RENTS

COLORADO/UTAH/WYOMINGMonthly Charge

Dormitory Rate\$64.20

Related Facilities Charges\$46.73

MBRR \$110.95 (Rounded)

Bi-Weekly Charge

To convert to bi-weekly rate

multiply MBRR by .4615 and

round to nearest five cents\$51.20

Weekly Charge

To convert to weekly rate

multiply MBRR by .2308 and

round to nearest five cents\$25.60

Daily Charge

To convert to daily rate

multiply MBRR by .0333 and

round to nearest five cents\$3.70

Note: An administrative adjustment of -10% is permitted if 3 or more people must share a bedroom or sleeping area. Also, an administrative adjustment of -10% is permitted for dormitories that lack kitchen or cooking facilities.

G. TRANSIENT QUARTERS

Transient quarters are those which are occupied on a transient basis, normally for a period of 90 days or less. Government provided transient quarters offer a range of accommodations. At some locations kitchen facilities, private telephones and private bathrooms may be available; at others, they are not provided. At some locations, maid service is provided (with varying degrees of frequency); at other locations, employees are "issued" bedding and other domestic items, and must take care of their own house keeping arrangements.

Given the diversity of facilities and services associated with Government-provided transient quarters, the QMIS National Quarters Council determined that private housing, comparable to Government transient quarters, generally does not exist. Accordingly, the rental charges for transient quarters have been established by extending the principle of comparability, as provided in OMB Circular A-45.

Essentially, the rental charge for transient quarters is the sum of the monthly dormitory rate (see Table 6); a monthly charge for maid service (Table 18); and a 20 percent administrative/service charge required by OMB Circular A-45 paragraph 7.c (4)(a). Monthly, weekly and daily charges for transient quarters are shown, below, in Table 7.

TABLE 7 TRANSIENT QUARTERS RENTS

Dormitory BSRR	\$64.20
Related Facilities Charges (Table 6)	46.73
Maid Service (Table 18)	<u>67.75</u>
Subtotal	\$178.70
Administrative Charge (OMB Cir. A-45)	<u>x 1.20</u>
Total (Rounded)	\$214.45
Monthly Charge (Rounded)	\$214.45
Bi-Weekly Charge (\$214.45 x .4615 Rounded)	\$98.95
Weekly Charge (\$214.45 x .2308 Rounded)	\$49.50
Daily Charge (\$214.45 x .0333 Rounded)	\$7.15

H. TRAILER SPACES

During the course of the survey, trailer pads were surveyed in a wide variety of mobile home parks and varied widely in physical characteristics, utilities, rents, and geographical location.

A simplified analysis of this data was done. The value of related facilities in the contract rent was subtracted to arrive at an adjusted rent. After excluding extreme outliers, the average adjusted rent was determined for the remaining samples.

The average adjusted rent was then divided into the actual rent of each remaining sample. Those communities where the adjusted contract rents were significantly lower than the average rent for the region were given their typical adjusted rents. The rental rates of trailer pads in all other communities were established at the survey average rental level for the region.

During the February, 1993 National Quarters Conference, the National Quarters Officers of the agencies that participate in the Quarters Management Program agreed to assess the same monthly base rental rate (the rate for a single-wide space) for **all** GFQ trailer spaces. This is because most employees do not own/occupy doublewide mobile homes, and because the market differences are negligible.

To determine the trailer pad Monthly Base Rental Rate, use the applicable rate contained in Table 8. Do not use the rates in Table 8 if the trailer pad is occupied by a Government-owned or leased mobile home, as the land rent is already included in the base rent for all improved quarters.

If, as an example, the trailer pad were occupied by a tenant-owned mobile home located near Rawlins, WY, the base rent for this pad would be \$128 per month. If, for another example, the trailer space were located near Moab, UT, the base rental rate for this pad would be \$160 (the "All Other Locations" charge). No other adjustments are made for physical characteristics such as the date the trailer pad was installed, the front or square footage, or the total number of sites at that location.

However, all appropriate administrative adjustments (such as amenity and isolation adjustments), as well as all charges for Government provided related facilities (such as utilities and furnishings) should be applied to the Monthly Base Rental Rates in Table 8 to determine the monthly net rental charge.

TABLE 8 TRAILER SPACES - MONTHLY BASE RENTAL RATES

<u>COMMUNITIES</u>	<u>MONTHLY BASE RENTAL RATES</u>
ARIZONA	
Page, AZ	\$135
COLORADO	
Gunnison, Co	\$149
MONTANA	
Livingston, MT	\$152
SOUTH DAKOTA	
Belle Fourche, SD	\$122
UTAH	
Beaver, UT	\$110
Cedar City, UT	\$122
Monticello, UT	\$129
Price, UT	\$70
Richfield, UT	\$133
Roosevelt, UT	\$90
Vernal, UT	\$112
WYOMING	
Evanston, WY	\$123
Greybull, WY	\$63
Lander, WY	\$128
Newcastle, WY	\$78
Rawlings, WY	\$128
ALL OTHER LOCATIONS	\$160

I. OBSOLETE QUARTERS

OMB Circular A-45 revised October 20, 1993 excludes from the term rental quarters "... housing which due to extreme deterioration is unsuitable for occupancy except in exigent circumstances. . . ." The net effect of this change means there will be no base rental rate for obsolete quarters. However, assessments will be made for utilities, furnishings, appliances and any other services that are provided by the Government.

The Department of the Interior Quarters Handbook (DQH), and the regulations of other QMIS program participants, provide that housing used as employee quarters must be safe, sanitary, and energy efficient. Where housing is in obsolete condition, it is by definition unfit for use as employee housing, and should be renovated, replaced, destroyed or used for non-residential purposes. Section 7.3A of the DQH also provides that the appropriate Program Assistant Secretary, or his/her designee (Bureau Head), may authorize temporary occupancy (for a period not to exceed one year), pending rehabilitation or replacement action where sufficient written justification is provided.

VI. CHARGES FOR UTILITIES, APPLIANCES AND RELATED SERVICES

A. BACKGROUND

OMB Circular A-45 requires that, whenever possible, utilities should be provided by a private company and billed directly to quarters occupants. Where Government-furnished utilities are provided, they should be metered or measured. When Government-furnished utilities are not metered or measured, consumption will be determined from an analysis of the average amounts of utilities used in comparable private housing in the nearest established community or survey area. **Where the Government furnishes utilities, and where the quarters rental rates are established by the regional survey method, the utility rates shall be the regional average utility rates prescribed in this report - not the rates prevailing in the nearest established community.**

The regional average utility rates contained in this report include all applicable delivery charges, adjustments, taxes and surcharges. Charges for Government-provided appliances, services and furnishings will be based upon nationwide average costs.

The following sections of this report detail the consumption and cost data to be used in the circumstances described above. The cost data in this report will be updated by the QMIS Program Office each year and distributed with the Consumer Price Index (CPI) adjustment that takes effect each year.

B. ENERGY CONSUMPTION STUDY

1. **General.** Energy consumption estimates are required where the Government furnishes the space heating or cooling fuel and the electricity, and where consumption is neither metered nor measured. In such instances, average energy consumption must be estimated and the Government must assess a charge based on private sector energy costs in the survey area. No methodology for estimating energy consumption can exactly predict the amounts of energy needed to heat or cool specific dwellings. Precise consumption measurements are possible only when metering is used. However, the methodology used in this report will yield **reasonable** estimates of the heating and cooling energy consumption requirements of unmetered dwellings. The methodology employed in this section was contractor-developed. For this report, however, the contractor-provided tables and conversion charts have been reformatted, and the methodology has been restated to simplify the process of estimating energy consumption requirements. The unit costs for various fuel types and for electricity (e.g., the cost per gallon for fuel oil and propane; the cost per MCF (1,000 cubic feet) for natural gas; and the cost per KwH for electricity) are regional averages of the unit fuel/electricity prices gathered by the contractor in each community surveyed.
2. **Housing Prototypes.** For the Colorado/Utah/Wyoming energy study, estimates of the heating and cooling energy requirements were prepared for each of the following six prototypical housing units.
 - Type I** - Single family, one story, no basement
 - Type II** - Single family, one story, full basement
 - Type III** - Single family, two story, no basement
 - Type IV** - Single family, two story, full basement
 - Type V** - Apartment unit
 - Type VI** - Mobile Home
3. **Assumptions.** For each of the housing prototypes, the following assumptions were made:
 - a. Location. - The housing is located in Alamosa, CO.
 - b. R values. - Each housing type has the R values of insulation in floors, walls, and ceilings recommended in the HUD Minimum Property Standards (HUD-MPS) for the Alamosa, CO area.
 - c. Occupants. - The housing contains an average compliment of occupants who are energy conscious (one person per 500 feet of floor space was assumed).
 - d. All measurements are of finished living space only and are based upon exterior dimensions.
 - e. Condition. - The housing is in good condition.

- f. Building shape. - A rectangular shape with a ratio of 2:1 was established. This provides more building skin than a square configuration therefore, the rectangular shape yields a conservative estimate of skin loads.
 - g. Window area. - A window area of 10 percent of wall area was used to match UBC (Uniform Building Code) minimum window area standards.
 - h. Roof type. - A flat or pitched roof with ceiling insulation was assumed in all cases.
 - i. Air changes. - 1.5 air changes per hour was established as representing a conservative estimate of air changes in residential applications.
 - j. Perimeter loss. - Approximately 10 percent of overall building load is attributed to the slab on grade floors with rigid insulation to a value of R-6.
4. Using the above assumptions, infiltration factors developed by the Department of Energy, R values, building dimensions, and cooling and heating degree days, a contractor has formulated methodologies for estimating British Thermal Unit (BTU) and kilowatt hour (KWH) consumption rates, and costs, for heating and cooling. The relevant portions of the methodology are explained below.

C. SPACE HEATING (FOSSIL FUEL) CONSUMPTION/COST CALCULATIONS

To illustrate the procedure for calculating the cost of heating with fossil fuel, a single story 1,850 square foot house, with no basement, located near Rifle, CO will be used as an example.

1. The first step is to select from among Tables 9a through 9f, the table which most closely describes the quarters unit at issue. In this case, Table 9a is for a 1-story, single family house with a partial (50 percent or less) or no basement (Prototype I). When determining the prototype, use the total basement (finished and unfinished) square footage. Unfinished space is only considered when determining the prototype. It is never used when using a rent setting or consumption chart. Table 9a should be selected in this example.
2. The second step is to determine the number of BTU's consumed **annually** for heating the house used in this example. Select from Table 9a the annual MBTU (million BTU's) consumption appropriate for the heating degree days (HDD's) and the gross **finished** square footage of the house in this example. Use the table as shown below.
 - a. Find the number of HDD's for the established community near which the quarters are located. Table 10 contains the HDD's for the nearest established communities in the Colorado/Utah/Wyoming survey region; this table shows that Rifle, CO has 6,720 HDD's. In Table 9a, 6,720 HDD's lies between the columns headed "**6,500**" and "**7,000.**" Round 6,720 HDD's down to 6,500 HDD's.
 - b. In Table 9a, 1,850 square feet (the size of the house used in the example) lies between 1,800 and 2,000 square feet; round 1,850 down to 1,800 square feet.

c. From Table 9a (1,800 square feet and 6,500 HDD's) the annual MBTU consumption rate is 114.2 MBTU's.

3. The third step is to calculate the amount of fossil fuel needed to produce 114.2 MBTU's. Table 11 shows the amount of fossil fuel needed to produce 1 MBTU. The total amount of heating fuel required to produce 114.2 MBTU's is computed by multiplying the appropriate fuel factor in Table 11 by the number of MBTU's. In this case the fuel required is:

Natural gas:	114.2 MBTU's x 1 MCF	=	114.2 MCF.
Propane:	114.2 MBTU's x 10.2 gallons	=	1,164.84 gallons
Fuel oil:	114.2 MBTU's x 7.04 gallons	=	803.97 gallons

4. The fourth step is to calculate the annual cost of the fuel consumed. This can be done by multiplying the annual fuel consumption by the unit fuel charges shown in Table 12. Following this procedure, the charge for fuel consumed annually to produce 114.2 MBTU's is:

Natural gas:	114.2 MCF x \$6.66 (per MCF)	=	\$760.57
Propane:	1,164.84 gallons x \$0.97(per gallon)	=	\$1,129.89
Fuel oil:	803.97 gallons x \$1.03 (per gallon)	=	\$828.09

5. The fifth step is to calculate the monthly charge for fossil heating fuel. This is done simply by dividing the annual charges (above) by 12 (months). In this manner the monthly charges are: natural gas = \$63.38; propane = \$94.16 and fuel oil = \$69.00.
6. The final step is to multiply the monthly charge (computed in step 5 above) by the appropriate HUD MPS Heating Zone conversion factor (Table 13). In order to use Table 13, it is first necessary to determine the HUD MPS Zone for the community at issue (Rifle, CO). Table 10 shows the HUD MPS Zones for the nearest established communities located within the Colorado/Utah/Wyoming survey region. From Table 10, it can be seen that Rifle, CO is in MPS Zone 7. The conversion factor can now be found in Table 13. The conversion factor for a single story dwelling with no basement (Prototype I) in HUD MPS Zone 7 is .79. Multiply the monthly charges determined in step 5 above by .79 (the conversion factor). In this manner, the heating fuel charge can be computed for any quarters unit in any community or location. In this example, the final monthly fossil fuel heating costs are \$50.07 (\$63.38 x .79) for natural gas, \$74.39 (\$94.16 x .79) for propane and \$54.51 (\$69.00 x .79) for fuel oil.

The above example pertained to a single story dwelling with a partial (50 percent or less) or no basement. When calculating the heating fuel charge for a different type of housing (including apartments and mobile homes), use the Table (9a through f) which most closely describes the quarters unit to compute the annual MBTU consumption.

TABLE 9a ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE I
Single Family, One Story, Partial (Less Than 50%) or No Basement

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating Degree Days																
	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500
100	2.4	2.9	3.4	3.9	4.4	4.9	5.4	5.9	6.3	6.8	7.3	7.8	8.3	8.8	9.3	9.8	10.2
200	4.9	5.9	6.8	7.8	8.8	9.8	10.7	11.7	12.7	13.7	14.6	15.6	16.6	17.6	18.5	19.5	20.5
400	9.8	11.7	13.7	15.6	17.6	19.5	21.5	23.4	25.4	27.3	29.3	31.2	33.2	35.1	37.1	39.0	41.0
600	14.6	17.6	20.5	23.4	26.4	29.3	32.2	35.1	38.1	41.0	43.9	46.8	49.8	52.7	55.6	58.6	61.5
800	19.5	23.4	27.3	31.2	35.1	39.0	42.9	46.8	50.8	54.7	58.6	62.5	66.4	70.3	74.2	78.1	82.0
1000	24.4	29.3	34.2	39.0	43.9	48.8	53.7	58.6	63.4	68.3	73.2	78.1	83.0	87.8	92.7	97.6	102.5
1200	29.3	35.1	41.0	46.8	52.7	58.6	64.4	70.3	76.1	82.0	87.8	93.7	99.5	105.4	111.3	117.1	123.0
1400	34.2	41.0	47.8	54.7	61.5	68.3	75.2	82.0	88.8	95.6	102.5	109.3	116.1	123.0	129.8	136.6	143.5
1600	39.0	46.8	54.7	62.5	70.3	78.1	85.9	93.7	101.5	109.3	117.1	124.9	132.7	140.5	148.3	156.2	164.0
1800	43.9	52.7	61.5	70.3	79.1	87.8	96.6	105.4	114.2	123.0	131.8	140.5	149.3	158.1	166.9	175.7	184.5
2000	48.8	58.6	68.3	78.1	87.8	97.6	107.4	117.1	126.9	136.6	146.4	156.2	165.9	175.7	185.4	195.2	205.0
2200	53.7	64.4	75.2	85.9	96.6	107.4	118.1	128.8	139.6	150.3	161.0	171.8	182.5	193.2	204.0	214.7	225.5
2400	58.6	70.3	82.0	93.7	105.4	117.1	128.8	140.5	152.3	164.0	175.7	187.4	199.1	210.8	222.5	234.2	245.9
2600	63.4	76.1	88.8	101.5	114.2	126.9	139.6	152.3	164.9	177.6	190.3	203.0	215.7	228.4	241.1	253.8	266.4
2800	68.3	82.0	95.6	109.3	123.0	136.6	150.3	164.0	177.6	191.3	205.0	218.6	232.3	245.9	259.6	273.3	286.9
3000	73.2	87.8	102.5	117.1	131.8	146.4	161.0	175.7	190.3	205.0	219.6	234.2	248.9	263.5	278.2	292.8	307.4

TABLE 9b ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE II
Single Story, Full Basement

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating Degree Days																
	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500
100	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5
200	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0
400	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40.0	42.0
600	15.0	18.0	21.0	24.0	27.0	30.0	33.0	36.0	39.0	42.0	45.0	48.0	51.0	54.0	56.9	59.9	62.9
800	20.0	24.0	28.0	32.0	36.0	40.0	44.0	48.0	52.0	55.9	59.9	63.9	67.9	71.9	75.9	79.9	83.9
1000	25.0	30.0	35.0	40.0	45.0	50.0	54.9	59.9	64.9	69.9	74.9	79.9	84.9	89.9	94.9	99.9	104.9
1200	30.0	36.0	42.0	48.0	54.0	59.9	65.9	71.9	77.9	83.9	89.9	95.9	101.9	107.9	113.9	119.9	125.9
1400	35.0	42.0	49.0	55.9	62.9	69.9	76.9	83.9	90.9	97.9	104.9	111.9	118.9	125.9	132.9	139.9	146.9
1600	40.0	48.0	55.9	63.9	71.9	79.9	87.9	95.9	103.9	111.9	119.9	127.9	135.9	143.9	151.9	159.9	167.8
1800	45.0	54.0	62.9	71.9	80.9	89.9	98.9	107.9	116.9	125.9	134.9	143.9	152.9	161.9	170.8	179.8	188.8
2000	50.0	59.9	69.9	79.9	89.9	99.9	109.9	119.9	129.9	139.9	149.9	159.9	169.8	179.8	189.8	199.8	209.8
2200	54.9	65.9	76.9	87.9	98.9	109.9	120.9	131.9	142.9	153.9	164.8	175.8	186.8	197.8	208.8	219.8	230.8
2400	59.9	71.9	83.9	95.9	107.9	119.9	131.9	143.9	155.9	167.8	179.8	191.8	203.8	215.8	227.8	239.8	251.8
2600	64.9	77.9	90.9	103.9	116.9	129.9	142.9	155.9	168.8	181.8	194.8	207.8	220.8	233.8	246.8	259.8	272.7
2800	69.9	83.9	97.9	111.9	125.9	139.9	153.9	167.8	181.8	195.8	209.8	223.8	237.8	251.8	265.8	279.7	293.7
3000	74.9	89.9	104.9	119.9	134.9	149.9	164.8	179.8	194.8	209.8	224.8	239.8	254.8	269.8	284.7	299.7	314.7

TABLE 9c ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE III
Single Family, Two Story, Partial (Less Than 50%) or No Basement
BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating Degree Days																
	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500
100	2.2	2.7	3.1	3.6	4.0	4.5	4.9	5.4	5.8	6.3	6.7	7.2	7.6	8.1	8.5	9.0	9.4
200	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7	12.6	13.5	14.4	15.3	16.2	17.1	18.0	18.9
400	9.0	10.8	12.6	14.4	16.2	18.0	19.8	21.6	23.3	25.1	26.9	28.7	30.5	32.3	34.1	35.9	37.7
600	13.5	16.2	18.9	21.6	24.2	26.9	29.6	32.3	35.0	37.7	40.4	43.1	45.8	48.5	51.2	53.9	56.6
800	18.0	21.6	25.1	28.7	32.3	35.9	39.5	43.1	46.7	50.3	53.9	57.5	61.1	64.7	68.2	71.8	75.4
1000	22.5	26.9	31.4	35.9	40.4	44.9	49.4	53.9	58.4	62.9	67.4	71.8	76.3	80.8	85.3	89.8	94.3
1200	26.9	32.3	37.7	43.1	48.5	53.9	59.3	64.7	70.0	75.4	80.8	86.2	91.6	97.0	102.4	107.8	113.1
1400	31.4	37.7	44.0	50.3	56.6	62.9	69.1	75.4	81.7	88.0	94.3	100.6	106.9	113.1	119.4	125.7	132.0
1600	35.9	43.1	50.3	57.5	64.7	71.8	79.0	86.2	93.4	100.6	107.8	114.9	122.1	129.3	136.5	143.7	150.9
1800	40.4	48.5	56.6	64.7	72.7	80.8	88.9	97.0	105.1	113.1	121.2	129.3	137.4	145.5	153.6	161.6	169.7
2000	44.9	53.9	62.9	71.8	80.8	89.8	98.8	107.8	116.7	125.7	134.7	143.7	152.7	161.6	170.6	179.6	188.6
2200	49.4	59.3	69.1	79.0	88.9	98.8	108.7	118.5	128.4	138.3	148.2	158.1	167.9	177.8	187.7	197.6	207.4
2400	53.9	64.7	75.4	86.2	97.0	107.8	118.5	129.3	140.1	150.9	161.6	172.4	183.2	194.0	204.7	215.5	226.3
2600	58.4	70.0	81.7	93.4	105.1	116.7	128.4	140.1	151.8	163.4	175.1	186.8	198.5	210.1	221.8	233.5	245.2
2800	62.9	75.4	88.0	100.6	113.1	125.7	138.3	150.9	163.4	176.0	188.6	201.2	213.7	226.3	238.9	251.4	264.0
3000	67.4	80.8	94.3	107.8	121.2	134.7	148.2	161.6	175.1	188.6	202.1	215.5	229.0	242.5	255.9	269.4	282.9

TABLE 9d ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE IV
Single Family, Two Story, Full Basement

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating Degree Days																
	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500
100	1.9	2.3	2.7	3.1	3.5	3.9	4.3	4.6	5.0	5.4	5.8	6.2	6.6	7.0	7.4	7.7	8.1
200	3.9	4.6	5.4	6.2	7.0	7.7	8.5	9.3	10.1	10.8	11.6	12.4	13.2	13.9	14.7	15.5	16.3
400	7.7	9.3	10.8	12.4	13.9	15.5	17.0	18.6	20.1	21.7	23.2	24.8	26.3	27.9	29.4	31.0	32.5
600	11.6	13.9	16.3	18.6	20.9	23.2	25.5	27.9	30.2	32.5	34.8	37.1	39.5	41.8	44.1	46.4	48.8
800	15.5	18.6	21.7	24.8	27.9	31.0	34.0	37.1	40.2	43.3	46.4	49.5	52.6	55.7	58.8	61.9	65.0
1000	19.3	23.2	27.1	31.0	34.8	38.7	42.6	46.4	50.3	54.2	58.0	61.9	65.8	69.6	73.5	77.4	81.3
1200	23.2	27.9	32.5	37.1	41.8	46.4	51.1	55.7	60.4	65.0	69.6	74.3	78.9	83.6	88.2	92.9	97.5
1400	27.1	32.5	37.9	43.3	48.8	54.2	59.6	65.0	70.4	75.8	81.3	86.7	92.1	97.5	102.9	108.3	113.8
1600	31.0	37.1	43.3	49.5	55.7	61.9	68.1	74.3	80.5	86.7	92.9	99.1	105.2	111.4	117.6	123.8	130.0
1800	34.8	41.8	48.8	55.7	62.7	69.6	76.6	83.6	90.5	97.5	104.5	111.4	118.4	125.4	132.3	139.3	146.3
2000	38.7	46.4	54.2	61.9	69.6	77.4	85.1	92.9	100.6	108.3	116.1	123.8	131.6	139.3	147.0	154.8	162.5
2200	42.6	51.1	59.6	68.1	76.6	85.1	93.6	102.1	110.7	119.2	127.7	136.2	144.7	153.2	161.7	170.2	178.8
2400	46.4	55.7	65.0	74.3	83.6	92.9	102.1	111.4	120.7	130.0	139.3	148.6	157.9	167.2	176.4	185.7	195.0
2600	50.3	60.4	70.4	80.5	90.5	100.6	110.7	120.7	130.8	140.8	150.9	161.0	171.0	181.1	191.1	201.2	211.3
2800	54.2	65.0	75.8	86.7	97.5	108.3	119.2	130.0	140.8	151.7	162.5	173.3	184.2	195.0	205.8	216.7	227.5
3000	58.0	69.6	81.3	92.9	104.5	116.1	127.7	139.3	150.9	162.5	174.1	185.7	197.3	208.9	220.5	232.2	243.8

TABLE 9e ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE V
 Apartments
 BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating Degree Days																
	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500
100	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.0	6.3
200	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.3	7.9	8.5	9.1	9.7	10.3	10.9	11.5	12.1	12.7
400	6.0	7.3	8.5	9.7	10.9	12.1	13.3	14.5	15.7	16.9	18.1	19.3	20.6	21.8	23.0	24.2	25.4
600	9.1	10.9	12.7	14.5	16.3	18.1	19.9	21.8	23.6	25.4	27.2	29.0	30.8	32.6	34.5	36.3	38.1
800	12.1	14.5	16.9	19.3	21.8	24.2	26.6	29.0	31.4	33.8	36.3	38.7	41.1	43.5	45.9	48.4	50.8
1000	15.1	18.1	21.2	24.2	27.2	30.2	33.2	36.3	39.3	42.3	45.3	48.4	51.4	54.4	57.4	60.4	63.5
1200	18.1	21.8	25.4	29.0	32.6	36.3	39.9	43.5	47.1	50.8	54.4	58.0	61.7	65.3	68.9	72.5	76.2
1400	21.2	25.4	29.6	33.8	38.1	42.3	46.5	50.8	55.0	59.2	63.5	67.7	71.9	76.2	80.4	84.6	88.9
1600	24.2	29.0	33.8	38.7	43.5	48.4	53.2	58.0	62.9	67.7	72.5	77.4	82.2	87.0	91.9	96.7	101.5
1800	27.2	32.6	38.1	43.5	49.0	54.4	59.8	65.3	70.7	76.2	81.6	87.0	92.5	97.9	103.4	108.8	114.2
2000	30.2	36.3	42.3	48.4	54.4	60.4	66.5	72.5	78.6	84.6	90.7	96.7	102.8	108.8	114.8	120.9	126.9
2200	33.2	39.9	46.5	53.2	59.8	66.5	73.1	79.8	86.4	93.1	99.7	106.4	113.0	119.7	126.3	133.0	139.6
2400	36.3	43.5	50.8	58.0	65.3	72.5	79.8	87.0	94.3	101.5	108.8	116.1	123.3	130.6	137.8	145.1	152.3
2600	39.3	47.1	55.0	62.9	70.7	78.6	86.4	94.3	102.2	110.0	117.9	125.7	133.6	141.4	149.3	157.2	165.0
2800	42.3	50.8	59.2	67.7	76.2	84.6	93.1	101.5	110.0	118.5	126.9	135.4	143.9	152.3	160.8	169.2	177.7
3000	45.3	54.4	63.5	72.5	81.6	90.7	99.7	108.8	117.9	126.9	136.0	145.1	154.1	163.2	172.3	181.3	190.4

TABLE 9f

ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE VI
Mobile Homes

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating Degree Days																
	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500
100	4.2	5.0	5.8	6.7	7.5	8.3	9.2	10.0	10.8	11.7	12.5	13.4	14.2	15.0	15.9	16.7	17.5
200	8.3	10.0	11.7	13.4	15.0	16.7	18.4	20.0	21.7	23.4	25.0	26.7	28.4	30.0	31.7	33.4	35.0
400	16.7	20.0	23.4	26.7	30.0	33.4	36.7	40.1	43.4	46.7	50.1	53.4	56.7	60.1	63.4	66.8	70.1
600	25.0	30.0	35.0	40.1	45.1	50.1	55.1	60.1	65.1	70.1	75.1	80.1	85.1	90.1	95.1	100.1	105.1
800	33.4	40.1	46.7	53.4	60.1	66.8	73.4	80.1	86.8	93.5	100.1	106.8	113.5	120.2	126.8	133.5	140.2
1000	41.7	50.1	58.4	66.8	75.1	83.4	91.8	100.1	108.5	116.8	125.2	133.5	141.9	150.2	158.6	166.9	175.2
1200	50.1	60.1	70.1	80.1	90.1	100.1	110.2	120.2	130.2	140.2	150.2	160.2	170.2	180.2	190.3	200.3	210.3
1400	58.4	70.1	81.8	93.5	105.1	116.8	128.5	140.2	151.9	163.6	175.2	186.9	198.6	210.3	222.0	233.7	245.3
1600	66.8	80.1	93.5	106.8	120.2	133.5	146.9	160.2	173.6	186.9	200.3	213.6	227.0	240.3	253.7	267.0	280.4
1800	75.1	90.1	105.1	120.2	135.2	150.2	165.2	180.2	195.3	210.3	225.3	240.3	255.4	270.4	285.4	300.4	315.4
2000	83.4	100.1	116.8	133.5	150.2	166.9	183.6	200.3	217.0	233.7	250.3	267.0	283.7	300.4	317.1	333.8	350.5
2200	91.8	110.2	128.5	146.9	165.2	183.6	201.9	220.3	238.7	257.0	275.4	293.7	312.1	330.5	348.8	367.2	385.5
2400	100.1	120.2	140.2	160.2	180.2	200.3	220.3	240.3	260.4	280.4	300.4	320.4	340.5	360.5	380.5	400.6	420.6
2600	108.5	130.2	151.9	173.6	195.3	217.0	238.7	260.4	282.1	303.8	325.5	347.1	368.8	390.5	412.2	433.9	455.6
2800	116.8	140.2	163.6	186.9	210.3	233.7	257.0	280.4	303.8	327.1	350.5	373.9	397.2	420.6	443.9	467.3	490.7
3000	125.2	150.2	175.2	200.3	225.3	250.3	275.4	300.4	325.5	350.5	375.5	400.6	425.6	450.6	475.7	500.7	525.7

TABLE 10 HEATING/COOLING DEGREE DAYS AND MPS ZONES

<u>Community</u>	<u>Heating Degree Days</u>	<u>Cooling Degree Days</u>	<u>HUD MPS Zone</u>
ARIZONA			
Page, AZ	4,346	1,668	7
COLORADO			
Alamosa, CO	8,736	44	8
Buena Vista, CO	8,020	72	8
Cortez, CO	6,568	446	7
Craig, CO	8,351	209	8
Del Norte, CO	8,381	41	8
Delta, CO	6,058	657	7
Eagle, CO	7,850	182	8
El Jebel, CO	6,685	446	7
Estes Park, CO	7,748	43	8
Ft. Collins, CO	6,238	497	8
Fruita, CO	6,127	783	6
Glenwood Springs, CO	6,685	446	7
Granby, CO	10,390	1	8
Grand Junction, CO	5,700	1,091	6
Gunnison, CO	10,127	26	8
Idaho Springs, CO	10,769	0	8
Kremmling, CO	9,893	29	8
Lakewood, CO	6,773	435	8
Leadville, CO	10,962	0	8
Meeker, CO	8,659	117	8
Monte Vista, CO	8,465	71	8
Montrose, CO	6,320	528	7
Pagosa Springs, CO	8,136	91	8
Rangely, CO	7,234	638	8
Rifle, CO	6,720	476	7
Silverthorne, CO	11,418	0	8
Springfield, CO	5,712	867	6
Steamboat Springs, CO	9,678	60	8
Woodland Park, CO	9,403	3	8

TABLE 10 HEATING/COOLING DEGREE DAYS AND MPS ZONES (Continued)

<u>Community</u>	<u>Heating Degree Days</u>	<u>Cooling Degree Days</u>	<u>HUD MPS Zone</u>
IDAHO			
Montpelier, ID	8,727	220	8
St. Anthony, ID	8,909	162	7
MONTANA			
Livingston, MT	7,475	329	8
SOUTH DAKOTA			
Belle Fourche, SD	6,995	680	8
UTAH			
American Fork, UT	5,848	796	8
Beaver, UT	6,476	405	7
Cedar City, UT	5,978	704	7
Castle Dale, UT	6,748	429	8
Delta, UT	6,198	809	7
Ephraim, UT	6,547	592	7
Heber City, UT	7,011	344	8
Hurricane, UT	3,103	2,471	6
Kanab, UT	5,007	742	7
Moab, UT	4,455	1,743	6
Monticello, UT	7,288	257	7
Panguitch, UT	7,319	211	8
Price, UT	7,484	315	8
Richfield, UT	6,261	418	6
Roosevelt, UT	7,550	483	8
Tooele, UT	5,755	988	7
Tremonton, UT	6,482	730	7
Vernal, UT	7,347	499	8
WYOMING			
Cody, WY	7,243	417	8
Evanston, WY	9,054	79	8
Green River, WY	8,183	249	8
Greybull, WY	7,966	556	8
Jackson, WY	9,529	50	8

TABLE 10 HEATING/COOLING DEGREE DAYS AND MPS ZONES

<u>Community</u>	<u>Heating Degree Days</u>	<u>Cooling Degree Days</u>	<u>HUD MPS Zone</u>
WYOMING			
Kemmerer, WY	9,767	119	8
Lander, WY	7,790	445	8
Lovell, WY	7,932	492	8
Newcastle, WY	7,426	631	8
Rawlins, WY	7,885	282	8
Riverton, WY	8,365	433	8
Saratoga, WY	8,107	159	8
Sheridan, WY	7,721	398	8

TABLE 11 FUEL REQUIRED TO PRODUCE 1 MBTU

<u>Type of Fuel</u>	<u>Amount Needed To Produce 1 MBTU</u>
Natural Gas	1 MCF (1,000 cu. ft.)
Propane	10.2 Gallons
Fuel Oil	7.04 Gallons

TABLE 12 HEATING FUEL COST

<u>Type of Fuel</u>	<u>Charge per unit</u>
Natural Gas	\$6.66
Propane	\$0.97
Fuel Oil #2	\$1.03

TABLE 13 MPS HEATING ZONE CONVERSION FACTORS

	Dwelling Prototypes					
	I	II	III	IV	V	VI
HUD MPS Heating Zone	Single Story No Basement	Single Story Full Basement	Double Story No Basement	Double Story Full Basement	Apartments	Mobile Homes
1						
2						
3						
4						
5						
6	.96	.96	.95	.97	.94	1.12
7	.79	.76	.74	.80	.66	.75
8	1.00	1.00	1.00	1.00	1.00	1.00

D. SPACE HEATING (ELECTRICITY) CONSUMPTION/COST CALCULATIONS

The procedure for calculating electrical consumption and costs for space heating (where electricity is unmetered or otherwise unmeasured) is similar to the procedure used for fossil fuels. Tables 14a through 14f are used.

1. Select from these tables the dwelling prototype most similar to the quarters at issue.
2. Determine the annual kilowatt hour (KwH) consumption by finding the appropriate columns for square feet and HDD (heating degree days). Note: HDD's for the nearest established communities may be found in Table 10.
3. Divide the annual KwH by 12 to determine the monthly average electrical consumption.
4. Adjust for HUD MPS Heating Zone, using the conversion factors in Table 13.
5. Adjust for heat pump (if applicable).
6. Determine the appropriate charge per KwH from the table below. **Do not calculate the total cost of electricity in steps such as the first 500 KwH costs so much, then the second 500 KwH costs so much etc.**

<u>KwH Consumed</u> <u>Per Month</u>	<u>Charge per KwH</u>
1 -500	\$.086
501 - 1,000	\$.078
1,001 -1,500	\$.076
Over - 1,500	\$.074

7. Compute the monthly charge for space heating by multiplying the appropriate charge per KwH times the number of KwH consumed per month.
8. Example: The average monthly electric heating charge for a single family, 2,100 square foot, two story, no basement home located near Hurricane, UT is computed as follows:
 - a. Step 1. Select the table (table 14a through f) which most closely describes the quarters unit at issue. In this case, table 14c (single family, two story, no basement - prototype III) should be selected.
 - b. Step 2. Determine from table 14c the annual KwH consumption appropriate for the heating degree days (HDD) and the gross square footage of the house in this example. Use the table as follows:
 - 1) Find the number of heating degree days for the established community in which the quarters is located. Table 10 (which contains the HDD for established communities in the Colorado/Utah/Wyoming survey region) shows that Hurricane, UT has 3,103 HDD . In

- table 14c, the number of HDD's in Hurricane, UT (3,103) lies between the column headed 3,000 and the column headed 4,000. Round down to 3,000 HDD.
- 2) In table 14c, 2,100 square feet (the size of the house used in this example) lies between 2,000 and 2,200 square feet. Round 2,100 down to 2,000 square feet.
 - 3) From table 14c (2,000 square feet and 3,000 HDD) the annual Kwh consumption rate is 12,630 Kwh.
- c. Step 3. Calculate the monthly Kwh consumption by dividing the annual Kwh by 12 (months). In this instance, the monthly consumption is 1,052.50 Kwh ($12,630 / 12 = 1,052.50$).
- d. Step 4, HUD MPS Zone adjustment. The HUD MPS zone adjustment is made as follows:
- 1) Use Table 10 to find the HUD MPS zone for the community at issue. In this manner, Hurricane, UT is found to be in HUD MPS zone 6.
 - 2) In Table 13, determine the adjustment factor for the appropriate dwelling type and MPS zone. The factor for housing prototype III in HUD MPS zone 6 is .95.
 - 3) Multiply the monthly electric consumption (as computed in paragraph 8c, above) times the HUD MPS adjustment factor ($1,052.50 \times .95 = 999.88$ Kwh per month).
- e. Step 5, **Adjustment for heat pump.** The process described above is used for computing the electrical consumption for heating with a straight resistance heating system. Where a dwelling is heated with an electric heat pump, the straight resistance heating consumption (999.88 Kwh in this example) should be multiplied by a factor of .75, which represents the greater efficiency of the heat pump. In this example, the monthly electric consumption for a heat pump as the heating source would be 749.91 ($999.88 \times .75 = 749.91$).
- f. Step 6. The final step is to compute the monthly charge for the electricity consumed. This is done by multiplying the charge per Kwh times the Kwh consumed per month. The appropriate charge per Kwh may be found in the table below.

<u>KwH Consumed Per Month</u>	<u>Charge per KwH</u>
1 -500	\$.086
501 - 1,000	\$.078
1,001 - 1,500	\$.076
Over - 1,500	\$.074

In this example, the average monthly consumption (999.88 KwH) for resistance heat falls in the "501-1,000" KwH per month consumption category; the appropriate charge is \$.078 per KwH. The average monthly consumption (749.19 KwH) for a heat pump falls in the "501-1,000" KwH per month consumption category; and the appropriate unit charge is \$.078 per KwH.

Therefore, the monthly electric heating charge for the house used in this example is computed as follows:

Resistance heat: 999.88 KwH x \$.078 = \$77.99

Heatpump: 749.19 KwH x \$.078 = \$58.44

E. SPACE COOLING CONSUMPTION/COST

Space cooling costs are calculated in the same manner as for electric space heating except that CDD (Cooling Degree Day) values are used in lieu of HDD values. CDD values for the Nearest Established Communities are found in Table 10. Additionally, only Tables 14a through 14f are used in calculating cooling energy consumption. Briefly, the steps are as follows.

1. Select from Tables 14a through 14f, the table that most closely describes the quarters unit at issue.
2. Based on the size of the dwelling (square feet) and the number of CDD (from Table 10), use the appropriate Table (14a-f) to determine the annual KwH consumption.
3. Divide the annual KwH consumption by 12 (months) to determine the average number of KwH consumed per month.
4. Apply the HUD MPS Zone adjustment factor.
5. Apply the Coefficient of Performance (COP) adjustment.
6. Determine the appropriate charge per KwH from the table below.

<u>KwH Consumed</u> <u>Per Month</u>	<u>Charge per KwH</u>
1 - 500	\$.086
501 - 1,000	\$.078
1,001 - 1,500	\$.076
Over - 1,500	\$.074

7. Compute the monthly charge for space cooling by multiplying the appropriate charge per KwH times the number of KwH consumed per month.
8. Example: Compute the average monthly electric cooling charge for a 1,275 SQFT mobile home near Moab, UT.
 - a. STEP 1: Table Selection. Select the table (table 14a through 14f), which most closely describes the quarters unit at issue. Table 14f (Mobile Home - prototype VI) should be selected.
 - b. STEP 2: Annual KwH Consumption. Determine from table 14f the annual KwH consumption appropriate for the cooling degree days (CDD) and the gross square footage of the mobile home in this example. Use the table as follows:
 - 1) Find the number of cooling degree days for the established community closest to the quarters. Table 10 (which contains the CDD for established communities in the Colorado/Utah/Wyoming survey region) shows that Moab, UT has 1,743 CDD. In table 14f, 1,743 CDD lies between the columns headed 1,000 and 2,000. Round down to 1,000 CDD.
 - 2) In table 14f, 1,275 square feet (the size of the mobile home used in this example) lies between 1,200 and 1,400 square feet. Round down to 1,200 square feet.
 - 3) From table 14f (1,200 square feet and 1,000 CDD) the annual KwH consumption rate is 4,694 KwH.
 - c. STEP 3: Monthly Consumption. Calculate the monthly KwH consumption by dividing the annual KwH consumption by 12 (months). In this instance, the monthly consumption is 391.17 KwH rounded ($4,694 / 12 = 391.17$).
 - d. STEP 4: HUD MPS Zone Adjustment. The HUD MPS Zone adjustment is made as follows:
 - 1) Use Table 10 to find the HUD MPS zone for the community at issue. In this manner, Moab, UT is found to be in HUD MPS Zone 6.
 - 2) In Table 15, determine the adjustment factor for the appropriate dwelling unit type and MPS zone. The factor for housing prototype VI in HUD MPS zone 6 is 1.97.

- 3) Multiply the monthly electric consumption (as computed in paragraph 8c, above) times the HUD MPS Zone adjustment factor $391.17 \times 1.97 = 770.60$ Kwh per month.
- e. STEP 5: Adjustment for Coefficient of Performance (COP). This adjustment accounts for the differences in the efficiencies of evaporative (swamp) and refrigerated air central cooling systems.
- 1) Evaporative (swamp) cooling. For a central evaporative cooling system the adjusted Kwh (computed in Step 4, above) is divided by a factor of 6.66. In this example, the monthly Kwh requirement for central evaporative cooling is computed as $770.60 / 6.66 = 115.71$ Kwh per month.
 - 2) Refrigerated air cooling. For a central refrigerated air cooling system, the adjusted Kwh (computed in step 4, above) is divided by a factor of 2. In this example, the monthly Kwh requirement for central refrigerated air cooling is computed as $770.60 / 2 = 385.30$ Kwh per month.
- f. STEP 6: Monthly Charge. The final step is to compute the monthly charge for the electricity consumed. This is done by multiplying the charge per Kwh times the Kwh consumed per month. The appropriate charge per Kwh may be found in the table below.

<u>Kwh Consumed Per Month</u>	<u>Charge per Kwh</u>
1 - 500	\$.086
501 - 1,000	\$.078
1,001 - 1,500	\$.076
Over - 1,500	\$.074

In this example, the average monthly consumption (115.71 Kwh) for evaporative cooling falls in the 1 to 500 Kwh consumption range. And (385.30 Kwh) for refrigerated cooling falls in the 1 to 500 Kwh consumption range. The appropriate charge will be \$.086 per Kwh for evaporative cooling and \$.086 for refrigerated cooling.

Therefore, the monthly charges for cooling the mobile home used in this example would be computed as follows.

Evaporative cooling : $115.71 \text{ Kwh} \times \$0.086 = \$9.95$

Refrigerated cooling: $385.30 \text{ Kwh} \times \$0.086 = \$33.14$

9. Gas powered Central Air Conditioning Units. If the central air conditioning unit is gas operated (natural gas or propane), the charge is computed as follows:

- a. Compute the Kwh consumption in same manner as shown in steps 1 through 4 above (Note: the calculations through step 4 produce 770.60 Kwh per month).
- b. Calculate the Coefficient of Performance (COP) adjustment in step 5 above for refrigerated air conditioning; that is, divide the number of Kwh in paragraph 9a, above (770.60 Kwh) by the COP (2); for example $770.60 / 2 = 385.30$ Kwh.
- c. Convert the monthly Kwh to MBTU's by dividing the Kwh calculated in paragraph 9b, above by 234.4. Thus, $385.30 \text{ Kwh} / 234.4 \text{ (Kwh per MBTU)} = 1.64$ MBTU's. [It takes 234.4 Kilowatts to generate 1 MBTU]
- d. Calculate the volumes of natural gas and propane needed to produce 1.64 MBTU's. This is done as follows.
 - 1) Natural Gas. For central air conditioning units that operate on natural gas, multiply the MBTU's calculated in paragraph 9c above by 1 MCF ($1.64 \text{ MBTU's} \times 1 \text{ MCF} = 1.64 \text{ MCF}$). Thus, 1.64 MCF of natural gas would be required per month (annual average) to cool the dwelling in this example.
 - 2) Propane. For central air conditioning units that operate on propane gas, multiply the MBTU's calculated in paragraph 9c above by 10.2 gallons ($1.64 \text{ MBTU's} \times 10.2 \text{ gallons} = 16.73 \text{ gallons}$). Thus, 16.73 gallons of propane would be required per month (annual average) to cool the dwelling in this example.
- e. Calculate the monthly charge for natural gas or propane consumed. This is done by multiplying the volume of fuel consumed by the unit cost of the fuel. These calculations are shown below.

Natural gas: $1.64 \text{ MCF} \times \$6.66 \text{ per MCF} = \$10.92$ (rounded) per month.

Propane gas: $16.73 \text{ gallons} \times \$0.97 \text{ per gallon} = \16.23 (rounded) per month.

TABLE 14a ANNUAL kWh USAGE (ELECTRIC HEATING/COOLING) - PROTOTYPE I
Single Family, One Story, Partial (Less Than 50%) or No Basement

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating or Cooling Degree Days																
	100	250	400	550	700	850	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
100	23	57	92	126	160	194	229	458	686	915	1144	1373	1601	1830	2059	2288	2516
200	46	114	183	252	320	389	458	915	1373	1830	2288	2745	3203	3660	4118	4575	5033
400	92	229	366	503	641	778	915	1830	2745	3660	4575	5490	6405	7321	8236	9151	10066
600	137	343	549	755	961	1167	1373	2745	4118	5490	6863	8236	9608	10981	12353	13726	15099
800	183	458	732	1007	1281	1556	1830	3660	5490	7321	9151	10981	12811	14641	16471	18301	20131
1000	229	572	915	1258	1601	1945	2288	4575	6863	9151	11438	13726	16014	18301	20589	22877	25164
1200	275	686	1098	1510	1922	2333	2745	5490	8236	10981	13726	16471	19216	21962	24707	27452	30197
1400	320	801	1281	1762	2242	2722	3203	6405	9608	12811	16014	19216	22419	25622	28825	32027	35230
1600	366	915	1464	2013	2562	3111	3660	7321	10981	14641	18301	21962	25622	29282	32942	36603	40263
1800	412	1029	1647	2265	2882	3500	4118	8236	12353	16471	20589	24707	28825	32942	37060	41178	45296
2000	458	1144	1830	2516	3203	3889	4575	9151	13726	18301	22877	27452	32027	36603	41178	45753	50329
2200	503	1258	2013	2768	3523	4278	5033	10066	15099	20131	25164	30197	35230	40263	45296	50329	55361
2400	549	1373	2196	3020	3843	4667	5490	10981	16471	21962	27452	32942	38433	43923	49414	54904	60394
2600	595	1487	2379	3271	4164	5056	5948	11896	17844	23792	29740	35688	41635	47583	53531	59479	65427
2800	641	1601	2562	3523	4484	5445	6405	12811	19216	25622	32027	38433	44838	51244	57649	64055	70460
3000	686	1716	2745	3775	4804	5834	6863	13726	20589	27452	34315	41178	48041	54904	61767	68630	75493

TABLE 14b ANNUAL kWh USAGE (ELECTRIC HEATING/COOLING) - PROTOTYPE II
Single Family, Single Story, Full Basement

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating or Cooling Degree Days																
	100	250	400	550	700	850	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
100	23	59	94	129	164	199	234	468	703	937	1171	1405	1639	1873	2108	2342	2576
200	47	117	187	258	328	398	468	937	1405	1873	2342	2810	3279	3747	4215	4684	5152
400	94	234	375	515	656	796	937	1873	2810	3747	4684	5620	6557	7494	8431	9367	10304
600	141	351	562	773	984	1194	1405	2810	4215	5620	7025	8431	9836	11241	12646	14051	15456
800	187	468	749	1030	1311	1592	1873	3747	5620	7494	9367	11241	13114	14988	16861	18734	20608
1000	234	585	937	1288	1639	1991	2342	4684	7025	9367	11709	14051	16393	18734	21076	23418	25760
1200	281	703	1124	1546	1967	2389	2810	5620	8431	11241	14051	16861	19671	22481	25292	28102	30912
1400	328	820	1311	1803	2295	2787	3279	6557	9836	13114	16393	19671	22950	26228	29507	32785	36064
1600	375	937	1499	2061	2623	3185	3747	7494	11241	14988	18734	22481	26228	29975	33722	37469	41216
1800	422	1054	1686	2318	2951	3583	4215	8431	12646	16861	21076	25292	29507	33722	37937	42153	46368
2000	468	1171	1873	2576	3279	3981	4684	9367	14051	18734	23418	28102	32785	37469	42153	46836	51520
2200	515	1288	2061	2834	3606	4379	5152	10304	15456	20608	25760	30912	36064	41216	46368	51520	56672
2400	562	1405	2248	3091	3934	4777	5620	11241	16861	22481	28102	33722	39342	44963	50583	56203	61824
2600	609	1522	2435	3349	4262	5175	6089	12177	18266	24355	30444	36532	42621	48710	54798	60887	66976
2800	656	1639	2623	3606	4590	5574	6557	13114	19671	26228	32785	39342	45899	52457	59014	65571	72128
3000	703	1756	2810	3864	4918	5972	7025	14051	21076	28102	35127	42153	49178	56203	63229	70254	77280

TABLE 14c ANNUAL kWh USAGE (ELECTRIC HEATING/COOLING) - PROTOTYPE III
Single Family, Two Story, Partial (Less Than 50%) or No Basement

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating or Cooling Degree Days																
	100	250	400	550	700	850	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
100	21	53	84	116	147	179	210	421	631	842	1052	1263	1473	1684	1894	2105	2315
200	42	105	168	232	295	358	421	842	1263	1684	2105	2526	2947	3368	3789	4210	4631
400	84	210	337	463	589	716	842	1684	2526	3368	4210	5052	5894	6736	7578	8420	9262
600	126	316	505	695	884	1074	1263	2526	3789	5052	6315	7578	8841	10104	11367	12630	13892
800	168	421	674	926	1179	1431	1684	3368	5052	6736	8420	10104	11788	13472	15155	16839	18523
1000	210	526	842	1158	1473	1789	2105	4210	6315	8420	10525	12630	14734	16839	18944	21049	23154
1200	253	631	1010	1389	1768	2147	2526	5052	7578	10104	12630	15155	17681	20207	22733	25259	27785
1400	295	737	1179	1621	2063	2505	2947	5894	8841	11788	14734	17681	20628	23575	26522	29469	32416
1600	337	842	1347	1852	2358	2863	3368	6736	10104	13472	16839	20207	23575	26943	30311	33679	37047
1800	379	947	1516	2084	2652	3221	3789	7578	11367	15155	18944	22733	26522	30311	34100	37889	41677
2000	421	1052	1684	2315	2947	3578	4210	8420	12630	16839	21049	25259	29469	33679	37889	42098	46308
2200	463	1158	1852	2547	3242	3936	4631	9262	13892	18523	23154	27785	32416	37047	41677	46308	50939
2400	505	1263	2021	2778	3536	4294	5052	10104	15155	20207	25259	30311	35363	40415	45466	50518	55570
2600	547	1368	2189	3010	3831	4652	5473	10946	16418	21891	27364	32837	38310	43782	49255	54728	60201
2800	589	1473	2358	3242	4126	5010	5894	11788	17681	23575	29469	35363	41256	47150	53044	58938	64832
3000	631	1579	2526	3473	4420	5368	6315	12630	18944	25259	31574	37889	44203	50518	56833	63148	69462

TABLE 14d ANNUAL kWh USAGE (ELECTRIC HEATING/COOLING) - PROTOTYPE IV
Single Family, Two Story, Full Basement

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating or Cooling Degree Days																
	100	250	400	550	700	850	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
100	18	45	73	100	127	154	181	363	544	726	907	1088	1270	1451	1632	1814	1995
200	36	91	145	200	254	308	363	726	1088	1451	1814	2177	2539	2902	3265	3628	3991
400	73	181	290	399	508	617	726	1451	2177	2902	3628	4353	5079	5804	6530	7256	7981
600	109	272	435	599	762	925	1088	2177	3265	4353	5442	6530	7618	8707	9795	10883	11972
800	145	363	580	798	1016	1233	1451	2902	4353	5804	7256	8707	10158	11609	13060	14511	15962
1000	181	453	726	998	1270	1542	1814	3628	5442	7256	9069	10883	12697	14511	16325	18139	19953
1200	218	544	871	1197	1524	1850	2177	4353	6530	8707	10883	13060	15237	17413	19590	21767	23943
1400	254	635	1016	1397	1778	2159	2539	5079	7618	10158	12697	15237	17776	20316	22855	25394	27934
1600	290	726	1161	1596	2032	2467	2902	5804	8707	11609	14511	17413	20316	23218	26120	29022	31924
1800	326	816	1306	1796	2285	2775	3265	6530	9795	13060	16325	19590	22855	26120	29385	32650	35915
2000	363	907	1451	1995	2539	3084	3628	7256	10883	14511	18139	21767	25394	29022	32650	36278	39906
2200	399	998	1596	2195	2793	3392	3991	7981	11972	15962	19953	23943	27934	31924	35915	39906	43896
2400	435	1088	1741	2394	3047	3700	4353	8707	13060	17413	21767	26120	30473	34827	39180	43533	47887
2600	472	1179	1886	2594	3301	4009	4716	9432	14148	18864	23581	28297	33013	37729	42445	47161	51877
2800	508	1270	2032	2793	3555	4317	5079	10158	15237	20316	25394	30473	35552	40631	45710	50789	55868
3000	544	1360	2177	2993	3809	4625	5442	10883	16325	21767	27208	32650	38092	43533	48975	54417	59858

TABLE 14e ANNUAL kWh USAGE (ELECTRIC HEATING/COOLING) - PROTOTYPE V
Apartments

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating or Cooling Degree Days																
	100	250	400	550	700	850	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
100	14	35	57	78	99	120	142	283	425	567	708	850	992	1133	1275	1417	1558
200	28	71	113	156	198	241	283	567	850	1133	1417	1700	1984	2267	2550	2834	3117
400	57	142	227	312	397	482	567	1133	1700	2267	2834	3400	3967	4534	5101	5667	6234
600	85	213	340	468	595	723	850	1700	2550	3400	4250	5101	5951	6801	7651	8501	9351
800	113	283	453	623	793	963	1133	2267	3400	4534	5667	6801	7934	9068	10201	11335	12468
1000	142	354	567	779	992	1204	1417	2834	4250	5667	7084	8501	9918	11335	12751	14168	15585
1200	170	425	680	935	1190	1445	1700	3400	5101	6801	8501	10201	11901	13601	15302	17002	18702
1400	198	496	793	1091	1388	1686	1984	3967	5951	7934	9918	11901	13885	15868	17852	19835	21819
1600	227	567	907	1247	1587	1927	2267	4534	6801	9068	11335	13601	15868	18135	20402	22669	24936
1800	255	638	1020	1403	1785	2168	2550	5101	7651	10201	12751	15302	17852	20402	22952	25503	28053
2000	283	708	1133	1558	1984	2409	2834	5667	8501	11335	14168	17002	19835	22669	25503	28336	31170
2200	312	779	1247	1714	2182	2649	3117	6234	9351	12468	15585	18702	21819	24936	28053	31170	34287
2400	340	850	1360	1870	2380	2890	3400	6801	10201	13601	17002	20402	23803	27203	30603	34004	37404
2600	368	921	1473	2026	2579	3131	3684	7367	11051	14735	18419	22102	25786	29470	33154	36837	40521
2800	397	992	1587	2182	2777	3372	3967	7934	11901	15868	19835	23803	27770	31737	35704	39671	43638
3000	425	1063	1700	2338	2975	3613	4250	8501	12751	17002	21252	25503	29753	34004	38254	42505	46755

TABLE 14f ANNUAL kWh USAGE (ELECTRIC HEATING/COOLING) - PROTOTYPE VI
Mobile Homes

BASELINE CITY, Alamosa, Colorado

Gross Square Feet	Heating or Cooling Degree Days																
	100	250	400	550	700	850	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
100	39	98	156	215	274	333	391	782	1174	1565	1956	2347	2738	3130	3521	3912	4303
200	78	196	313	430	548	665	782	1565	2347	3130	3912	4694	5477	6259	7042	7824	8606
400	156	391	626	861	1095	1330	1565	3130	4694	6259	7824	9389	10954	12519	14083	15648	17213
600	235	587	939	1291	1643	1995	2347	4694	7042	9389	11736	14083	16431	18778	21125	23472	25819
800	313	782	1252	1721	2191	2660	3130	6259	9389	12519	15648	18778	21907	25037	28167	31296	34426
1000	391	978	1565	2152	2738	3325	3912	7824	11736	15648	19560	23472	27384	31296	35208	39120	43032
1200	469	1174	1878	2582	3286	3990	4694	9389	14083	18778	23472	28167	32861	37556	42250	46945	51639
1400	548	1369	2191	3012	3834	4655	5477	10954	16431	21907	27384	32861	38338	43815	49292	54769	60245
1600	626	1565	2504	3443	4381	5320	6259	12519	18778	25037	31296	37556	43815	50074	56333	62593	68852
1800	704	1760	2817	3873	4929	5985	7042	14083	21125	28167	35208	42250	49292	56333	63375	70417	77458
2000	782	1956	3130	4303	5477	6650	7824	15648	23472	31296	39120	46945	54769	62593	70417	78241	86065
2200	861	2152	3443	4734	6025	7316	8606	17213	25819	34426	43032	51639	60245	68852	77458	86065	94671
2400	939	2347	3756	5164	6572	7981	9389	18778	28167	37556	46945	56333	65722	75111	84500	93889	103278
2600	1017	2543	4069	5594	7120	8646	10171	20343	30514	40685	50857	61028	71199	81370	91542	101713	111884
2800	1095	2738	4381	6025	7668	9311	10954	21907	32861	43815	54769	65722	76676	87630	98583	109537	120491
3000	1174	2934	4694	6455	8215	9976	11736	23472	35208	46945	58681	70417	82153	93889	105625	117361	129097

TABLE 15 MPS COOLING ZONE CONVERSION FACTORS

	Dwelling Prototypes					
	I	II	III	IV	V	VI
HUD MPS Heating <u>Zone</u>	Single Story No <u>Basement</u>	Single Story Full <u>Basement</u>	Double Story No <u>Basement</u>	Double Story Full <u>Basement</u>	Apart- ments	Mobile Homes
1						
2						
3						
4						
5						
6	1.68	1.70	1.74	1.58	1.97	1.97
7	1.03	1.06	1.03	1.04	1.05	1.09
8	1.08	1.11	1.09	1.07	1.12	1.14

F. NON-SPACE HEATING/COOLING ENERGY CONSUMPTION/COST

The examples in the preceding sections (VI.C, VI.D and VI.E) dealt with the charges for space heating and cooling. However, to compute **total** energy consumption charges, the costs for energy consumed by lights, equipment, and appliances (Government **and** tenant owned) must be determined and added to the heating and cooling charges.

1. **Consumption.** Electric non-space heating/cooling consumption and cost estimates include electricity used by small appliances, lights, radios, television, refrigerators, ranges, washers, dryers, etc. These items, and their associated consumption levels, are shown in Table 16.

To use Table 16, first, determine the finished floor space square footage range within which a specific quarters unit falls. Then, using the values in Table 16, add the Kwh consumed by each appliance or equipment item which is present in the quarters unit. If a housing unit has more than one (1) refrigerator, freezer, room (window) air conditioner, or space heater, multiply the Kwh shown in the table times the number of refrigerators, freezers, room air conditioners, or space heaters that are present in the quarters unit to determine the total monthly Kwh consumption for these appliances.

There may be instances where appliances are fueled by fossil fuels rather than by electricity. Table 16a provides monthly consumption (in MCF or gallons of fuel) for the most common of these.

If an appliance listed in Table 16 or Table 16a is not present in the quarters unit at issue, do not include its monthly energy consumption when computing the total energy consumed by equipment and appliances.

2. **Cost.** The cost of electricity or fossil fuel consumed by appliances and equipment is easily computed by multiplying the total monthly consumption (as determined in the preceding paragraphs) times the appropriate charge per Kwh, MCF or gallon. These unit charges are shown in Table 17.

TABLE 16 MONTHLY KWH USAGE: APPLIANCES AND EQUIPMENT

Appliance/ Equipment	Gross Square Feet of Living Space									
	Under 301	301- 500	501- 700	701- 1,100	1,101- 1,300	1,301- 1,500	1,501- 1,900	1,901- 2,100	2,101- 2,500	Over 2,500
Hot water heater	130	130	245	245	370	370	480	480	600	705
Stove / Microwave	45	45	50	50	55	55	60	60	65	70
Refrigerator 1/	45	50	50	50	85	85	85	85	85	85
Clothes washer	20	35	35	35	45	45	45	55	55	65
Clothes dryer	15	15	25	25	35	35	35	35	40	50
Dishwasher	35	35	45	45	60	60	70	70	80	95
Freezer 1/	70	70	70	70	70	70	70	70	70	70
Furnace fan	15	15	20	20	20	25	25	30	30	35
Room air conditioner	65	65	65	65	65	65	65	65	65	65
Television / radio	5	5	10	10	20	20	20	20	25	25
Lights	50	55	75	80	90	90	95	100	120	120
Space heater (portable) 1/	130	130	130	130	130	130	130	130	130	130
Misc. small appliances	30	30	45	45	65	65	75	80	95	105
Engine Heaters	195	195	195	195	195	195	195	195	195	195
Hot Tub	360	360	360	360	360	360	360	360	360	360

1/ If more than one of these appliances are present in a quarters unit, multiply the Kwh consumption times the number of appliances to determine the total Kwh consumed for each appliance category.

NOTE: FOR APPLIANCES OPERATED BY FOSSIL FUELS, SEE TABLE 16a.

TABLE 16a MONTHLY FOSSIL FUEL CONSUMPTION: APPLIANCES AND EQUIPMENT

Appliance/ Equipment	Gross Square Feet of Living Space									
	Under 301	301- 500	501- 700	701- 1,100	1,101- 1,300	1,301- 1,500	1,501- 1,900	1,901- 2,100	2,101- 2,500	Over 2,500
Hot water heater										
Natural Gas MCF	.55	.55	1.05	1.05	1.58	1.58	2.05	2.05	2.56	3.01
Propane Gallons	5.61	5.61	10.71	10.71	16.12	16.12	20.91	20.91	26.11	30.70
Fuel oil Gallons	3.87	3.87	7.39	7.39	11.12	11.12	14.43	14.43	18.02	21.19
Kitchen Range										
Natural Gas MCF	.19	.21	.21	.21	.36	.36	.36	.36	.36	.36
Propane Gallons	1.94	1.94	2.14	2.14	2.35	2.35	2.65	2.65	2.86	3.06
Fuel oil Gallons	1.34	1.34	1.48	1.49	1.62	1.62	1.83	1.83	1.97	2.11
Refrigerator 1/										
Natural Gas MCF	.19	.21	.21	.21	.36	.36	.36	.36	.36	.36
Propane Gallons	1.94	2.14	2.14	2.14	3.67	3.67	3.67	3.67	3.67	3.67
Clothes dryer										
Natural Gas MCF	.06	.06	.11	.11	.15	.15	.15	.15	.17	.21
Propane Gallons	.61	.61	1.12	1.12	1.53	1.53	1.53	1.53	1.73	2.14
Freezer 1/										
Natural Gas MCF	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
Propane Gallons	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06
Space heater (portable) 1/										
Natural Gas MCF	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55
Propane Gallons	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61
Fuel oil Gallons	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87

1/ If more than one of these appliances are present in a quarters unit, multiply the consumption times the number of appliances to determine the total consumed for each appliance category.

NOTE: To compute the cost per month for an appliance that is fueled by a fossil fuel, multiply the consumption listed by the unit cost found in Table 17 of this report.

G. WATER AND SEWER CONSUMPTION/COST CALCULATIONS

In accordance with OMB Circular No. A-45 and Departmental policies and guidelines, when utilities are furnished by the Government, charges shall be based upon regional average residential rates and consumption levels applicable to private rental housing in the survey region.

Where regional survey procedures are used to establish base rental rates, *the charges for Government-furnished water and sewer services, must be based upon regional average water and sewer rates, and not the rates prevailing in the nearest Established Community.* In determining the regional average rates, the water and sewer rates for each survey community were obtained and averaged.

Thus, where the water service is unmetered, and where the Government furnishes water and sewer services, *including well water and septic waste disposal systems*, the regional average flat rate charges, shown below, shall be used. These charges are based upon (1) the average of the monthly service costs (including taxes, service charges, etc.) in all surveyed communities; and (2) consumption levels (based on numbers of bedrooms) contained in planning guides published by the Department of Housing and Urban Development (HUD). The rates below are based upon the number of bedrooms contained in a dwelling.

Flat Rate Water and Sewer Charges

<u>Number of Bedrooms</u>	<u>Monthly Charges</u>		<u>Total</u>
1 (or less)	\$15.30 water +	\$15.00 sewer	= \$30.30
2	\$17.00 water +	\$15.50 sewer	= \$32.50
3	\$19.50 water +	\$16.50 sewer	= \$36.00
4	\$23.00 water +	\$17.00 sewer	= \$40.00

H. GOVERNMENT PROVIDED METERED UTILITIES

Where the Government provides the utilities, and the consumption is metered *at the quarters unit level*, the following unit charges will apply.

TABLE 17 UTILITY CHARGES (COST PER UNIT)

Do not calculate the total cost of electricity in steps, such as the first 500 Kwh costs so much, then the second 500 Kwh costs so much, etc.

a. <u>Electricity</u>	Kwh Consumed	
	Per Month	Charge Per Kwh
	0 - 500	\$.086
	501 - 1,000	\$.078
	1,001 - 1,500	\$.076
	Over - 1,500	\$.074
b. Fuel Oil #2	\$1.03 Per Gallon.	
c. Propane	\$0.97 Per Gallon.	
d. Natural Gas	\$6.66 Per MCF (1,000 cubic feet).	
e. Water	Cost Per	
	Water Consumed Per Month	Gallon
	1 – 3,000 Gallons	\$0.0051
	3,001 - 5,000 Gallons	\$0.0034
	5,001 - 7,500 Gallons	\$0.0026
	Over - 7,500 Gallons	\$0.0023
f. Sewer	Cost Per	
	Sewer Consumed Per Month	Gallon
	1 - 3,000 Gallons	\$0.0050
	3,001 - 5,000 Gallons	\$0.0031
	5,001 - 7,500 Gallons	\$0.0022
	Over - 7,500 Gallons	\$0.0017

I. GARBAGE/TRASH REMOVAL SERVICE RATES

In the case of garbage and trash hauling, as with other Government-provided services, OMB Circular No. A-45 requires the charges to be based upon the domestic rates for comparable services provided to occupants of private rental units in the survey area.

The garbage and trash services provided to quarters occupants vary from weekly to daily service. Establishment of a service charge based upon the service in the nearest established community may or may not reflect a similar level of service. Therefore, the charge for garbage and trash collection, when conducted by the Government, will, regardless of quarters type, be **\$13.00 per quarters unit per month**.

J. CHARGES FOR APPLIANCES AND RELATED SERVICES

OMB Circular No. A-45 requires agencies to charge occupants of Government quarters for appliances, furnishings and services which the Government provides with the quarters. The charges for appliances, furnishings and services most typically provided by Federal agencies are found in Table 18. The monthly recapture cost of the items in Table 18 were determined from information gathered by contractors in the survey communities of all QMIS regions, and from special studies conducted by the QMIS Program Office.

Agencies providing appliances, furnishings or services that are not included in Table 18 are responsible for establishing an appropriate monthly charge which reflects the private market value of the item(s) provided. In such cases, the agency or bureau should advise the QMIS Program Office to ensure that subsequent regional survey reports include charges for all Government-provided appliances, furnishings and services.

TABLE 18 MONTHLY CHARGES FOR APPLIANCES & RELATED SERVICES

APPLIANCES		SERVICES AND FURNISHINGS	
Range (Gas / Electric) *	(+/-) \$3.60	Storage Shed (Per Unit)	\$2.55
Refrigerator *	(+/-) \$3.30	Furniture (Per Room)	11.50
Clothes Washer	3.60	Swimming Pool	
Clothes Dryer	3.30	Private Pool	60.00
Dishwasher	3.15	Community Pool	20.00
Microwave Oven	1.40	Satellite Dish	17.70
Trash Compactor	3.60	Cable Television	22.90
Freezer	1.90	Premium Channel (Each)	15.40
Freezer (Community)	1.00	Maid Service	67.75
Window Air Conditioner		Lawn care (Per Mowing)	
Refrigerated Unit	4.10	Houses (Excluding Plexes)	20.80
Evaporative (Swamp) Unit	3.05	All Other Classes	10.40
Free Standing Stove	3.65	Snow Removal (Per Removal)	12.30
Fireplace Insert	4.40	Firewood (Per Cord)	126.75
Lawn Mower	3.80		
Hot Tub	33.30	<u>ELECTRIC CREDITS</u>	
		Well pump (0-1 Bedroom)	1.15
Community Laundry		Well pump (2 Bedrooms)	1.80
(Non-Coin Operated)		Well pump (3 Bedrooms)	2.60
Washer Only	1.90	Well pump (4+ Bedrooms)	3.50
Dryer Only	1.60		
Washer and Dryer	3.50	Sewer Lift Pump (0-1 Bedroom)	1.15
		Sewer Lift Pump (2 Bedrooms)	1.15
		Sewer Lift Pump (3 Bedrooms)	1.35
		Sewer Lift Pump (4+ Bedrooms)	1.80
ISOLATION ADJUSTMENT FACTOR	2.80	Base Radio	1.15
		Remote Control Relay	1.15
		Sump Pump	1.15
		Radon Mitigation Fan	10.35

* If the Government provides one range and refrigerator, no additions or deductions are made.
If the Government does not provide a range or a refrigerator, deduct the amount shown above.

If the Government provides 2 or more ranges or refrigerators, add the amounts shown above for each appliance furnished in excess of one range and one refrigerator

VII. ADMINISTRATIVE ADJUSTMENTS

Once the MBRR is established, certain adjustments (e.g. for isolation and amenity deficiencies) are authorized by OMB Circular No. A-45. These administrative adjustments are established by OMB and are not derived from regional surveys conducted by the QMIS Program Office.

The administrative adjustments contained in OMB Circular A-45, and described below, are not authorized for dormitories, bunkhouses, or transient quarters. This is because the rental rates for those housing classes are administratively established, through extensions of the principle of comparability, and are not based directly upon market comparability.

A. SITE AMENITY ADJUSTMENTS

Living conditions at some Government housing sites are not always the same as those found in the survey communities. In the communities surveyed, the amenities discussed below (and in OMB Circular A-45) are generally present and their contributory value is included in the contract rent and in the quarters MBRR's determined from the tables in this report. Thus, if any amenity listed below is present at the quarters site, no positive adjustment is made for that amenity because its presence has already accounted for in the MBRR. However, the lack of an amenity discussed below represents a less desirable condition that should be reflected as a **negative** percentage adjustment to the quarters MBRR or CPI-adjusted MBRR (CPI-MBRR), whichever is applicable.

1. **Reliability and adequacy of water supply.** The water delivery system at the quarters site should provide potable water (free of significant discoloration or odor) at adequate pressure at usual outlets. If the water delivery system at the quarters site does not meet these conditions, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.
2. **Reliability and adequacy of electric service.** Electric service at the quarters site must equal or exceed a 100-ampere power system, and should provide 24-hour service under **normal** conditions. When evaluating the electric service, housing managers are reminded that OMB Circular A-45 recognizes that occasional temporary power outages are considered to be "**normal**" conditions. Furthermore, if an adequate back-up generator is available, then the electric service amenity will be considered to be reliable and adequate regardless of the reliability of the primary power source. When electric service is inadequate and unreliable, 3 percent should be deducted from the MBRR or CPI-MBRR whichever is applicable.
3. **Reliability and adequacy of fuel for heating, cooling and cooking.** There should be sufficient fuel storage capacity to meet prevailing weather conditions and needs. Where electricity is used as the heating, cooling or cooking "fuel," an adjustment can only be made when a deduction has been made for deficient electric service (see paragraph VII.A.2, above). If the fuel delivery/storage system is inadequate, 3 percent should be deducted from the MBRR or the CPI-MBRR, whichever is applicable.
4. **Reliability and adequacy of police protection.** Law enforcement personnel, including Government employees with law enforcement authority, should be available on a 24-hour basis.

OMB Circular A-45 defines "**availability**" as the ability of law enforcement officers to respond to emergencies at the quarters site as quickly as a law enforcement officer in the nearest established community could respond to an emergency in the nearest established community.

OMB Circular A-45 further provides that where part-time officers serve the quarters site, the fact that the officers are part-time does not necessarily mean that they are less available than officers in the nearest established community. The important point is that the availability determination must be based on comparative response times (quarters site vs. the nearest established community) - not the employment conditions of the officers serving the quarters site.

Finally, OMB Circular A-45 provides that gaps in availability due to temporary illness or injury, use of annual leave, temporary duties, training, or other short absences, do not render law enforcement personnel "unavailable" at the quarters site.

If, after applying these guidelines, it is determined that the law enforcement protection at the quarters site is unreliable and inadequate in comparison to the reliability and adequacy of law enforcement protection in the nearest established community, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

5. **Fire insurance availability or reliability and adequacy of fire protection.** Fire insurance should be available (for the quarters) with the premium charge based upon a rating equal to the rating available to comparable housing located in the nearest established community. Alternatively, adequate equipment, an adequate supply of water (or fire retardant chemical), and trained personnel should be available on a 24-hour basis to meet foreseeable emergencies. OMB Circular A-45 provides that **if either element is present (adequate insurance or an adequate fire fighting capability), no adjustment is authorized.** If both elements are missing, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.
6. **Reliability and adequacy of sanitation service.** An adequately functioning sewage disposal system and a solid waste disposal system should be available. OMB Circular A-45 considers septic, cesspool or other systems adequate even though they may require periodic maintenance, as long as they are usable during periods of occupancy. If the sanitation service at the quarters site is unreliable or inadequate, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.
7. **Reliability and adequacy of telephone service.** Access to commercial telephone facilities should be available on a 24-hour basis. Deductions (except as provided below) are not allowed for occasional temporary interruptions of telephone service. OMB Circular A-45 allows specific deductions for various levels of service and privacy. These are explained below.
 - a. The MBRR or CPI-MBRR (whichever is applicable) should be reduced by 3 percent if telephone service is not available within the quarters or within 100 yards of the quarters.
 - b. The MBRR or CPI-MBRR (whichever is applicable) should be reduced by 2 percent if there is no telephone service within the quarters, but telephone service (either private or party line) is available within 100 yards of the quarters.

- c. The MBRR or CPI-MBRR (whichever is applicable) should be reduced by 1 percent if telephone service is available in the employee's quarters, but the service is not private line service and/or the service is not accessible on a 24-hour per day basis.
- 8. **Noise and odors.** If there are frequent disturbing or offensive noises and/or odors at the quarters site, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.
- 9. **Miscellaneous improvements.** One or more of the following improvements should be available at the quarters site: paved roads/streets, sidewalks or street lights. If any one of these improvements is present, no deduction is authorized. If all three of these improvements are missing (i.e., there are no paved roads/streets **and** there are no sidewalks, **and** there are no street lights), 1 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

B. ISOLATION ADJUSTMENT

In some cases, Government quarters are located far from the nearest established community (see paragraph IX.C for the OMB's definition of "established community"). In addition, different modes of transportation (travel categories) may serve to further isolate the quarters from the nearest established community. In situations where the quarters location and the travel categories meet the requirements contained in OMB Circular A-45, an isolation adjustment should be applied. To determine whether an isolation adjustment applies, and the amount of the adjustment (if one does apply), you should follow the steps in the Isolation Adjustment Computation Schedule, shown on the following page. This schedule is a (modified) reproduction of the appendix to OMB Circular A-45, and is included in this report for illustrative purposes, only. Therefore, you should use the form prescribed by your agency or bureau when documenting the isolation adjustment.

Isolation Adjustment Computation

- *Step 1.* Determine the one-way distance in miles (from the quarters to the nearest established community) for each category of transportation listed in Figure 1. Enter mileage(s) in the appropriated block(s) under Column B.
- *Step 2.* Multiply mileage figures entered in Column B by point values listed in Column A for each affected category of transportation to produce one-way points for each category. Add 29 points to the category 4 subtotal and 27 points to the category 5 subtotal to reflect relative differences in cost or time by use of these modes of travel.
- *Step 3.* Add all categories of one-way points in Column C to produce one-way points. (The total must exceed 30 points or there is no adjustment for isolation.)

Figure 1				
<u>Category of Travel</u>	<u>Column A Point Value</u>		<u>Column B One-way Miles</u>	<u>Column C One-way Points</u>
(1) Paved road or rail	1.0	X	_____ =	_____
(2) Unpaved but improved road	1.5	X	_____ =	_____
(3) Unimproved road	2.0	X	_____ =	_____
(4) Water, snowmobile, pack animal, foot or other special purpose conveyance	2.5	X	_____ = _____+29	_____
(5) Air	4.0	X	_____ = _____+27	_____
			=	_____
TOTAL ONE-WAY POINTS				_____

- *Step 4.* Calculate the Isolation Adjustment Factor (IAF) using the following OMB formula: Multiply 2 (to reflect round-trip points) by 4 (to reflect number of trips per month) and then multiply by \$x.xx (GSA's current automobile allowance as of the last day of September of each year). For example, the GSA mileage allowance, as of September 30, 2001, was \$0.345 per mile, resulting in a IAF of 2.80.

ISOLATION ADJUSTMENT FACTOR = 2.80

- *Step 5.* Multiply total adjusted points by the Isolation Adjustment Factor to produce the monthly adjustment for isolation (rounded to the nearest whole dollar).

MONTHLY ADJUSTMENT = _____

C. LOSS OF PRIVACY

Some quarters occupants are subject to a loss of privacy during non-duty hours by virtue of **public visits which occur several times daily**. In other cases, quarters occupants may be **inhibited from enjoying the full range of activities normally associated with living in private rental housing** (such as where restrictions are imposed on activities in quarters at national cemeteries, or where quarters are in view of prison inmates). In such cases, OMB Circular A-45 allows a deduction from the MBRR or CPI-MBRR (whichever is applicable) of up to 10 percent. OMB Circular A-45 instructs housing managers to establish proportional adjustments to reflect situations of less frequency or seriousness in their impact upon privacy or usage, or to reflect seasonal variations.

D. EXCESSIVE OR INADEQUATE SIZE

Quarters occupants are sometimes provided dwellings that are excessively large or small for their needs. This may be because the range and variety of quarters available at an installation may be much less than that which is available in private rental markets. In such cases, OMB Circular A-45 allows a deduction from the MBRR or the CPI-MBRR (whichever is applicable) of up to 10 percent. The Circular instructs that the deduction should be in direct proportion to the degree of excess or inadequacy, and that the deduction must not continue beyond one month after suitable quarters are made available. Before this adjustment is applied, local housing managers should consult with managers within their agencies or bureaus to determine whether other alternatives (such as closing off rooms and other excess space) would offer a more suitable means of adjustment.

E. LIMITATIONS TO ADMINISTRATIVE ADJUSTMENTS

Administrative adjustments cannot be applied without limit. OMB Circular A-45 provides that the MBRR or CPI-MBRR cannot be reduced by more than 50 percent unless an isolation is authorized and applied. For quarters which receive an isolation adjustment, the MBRR or CPI-MBRR may not be reduced by more than 60 percent. These limitations do not apply to excessive heating or cooling adjustments, which are described in paragraph IX.A of this report.

VIII. CONSUMER PRICE INDEX ADJUSTMENTS

OMB Circular A-45 requires annual verification, and adjustment (when necessary) of the following rental components that are presented in this report: (1) the Monthly Base Rental Rates (MBRR's); (2) the charges for related facilities (utilities, appliances, furnishings and services); and (3) the Isolation Adjustment Factor (IAF). These verifications and adjustments are to be made, essentially, in each interim year between baseline regional surveys.

Generally, OMB Circular A-45 specifies that these changes are to be based upon September index levels of specified components of the Consumer Price Index (CPI); and the GSA temporary duty mileage allowance in effect as of September 30, of each year. These changes must be implemented at the beginning of the first pay period in March of each following year.

The QMIS Program Office is responsible for determining the amounts of these changes, and for providing QMIS Program participants with the information, the software and the instructions needed to implement the required changes. This information is usually distributed to each National Quarters Officer in November of each year. National, regional or installation quarters managers (as required by your agency or bureau) are responsible for implementing these annual rental adjustments.

IX. OTHER OMB CIRCULAR A-45 RENT CONSIDERATIONS

A. EXCESSIVE HEATING OR COOLING COSTS

OMB Circular A-45 authorizes a deduction from the Monthly Base Rental Rate (MBRR) or the Consumer Price Index - adjusted Monthly Base Rental Rate (CPI-MBRR), whichever is applicable, when quarters are unusually costly to heat or cool. This adjustment is allowed only when (1) the excessive heating or cooling costs are due to the poor design of the quarters or the lack of adequate insulation/weather-proofing; and (2) when the energy/fuel used for heating and/or cooling is metered. This adjustment will vary from quarters-to-quarters, but is the difference between the actual heating and/or cooling costs paid by the quarters occupant and 125 percent of the cost of heating and/or cooling a comparable (but adequately constructed and insulated) dwelling located in the same climate zone. For more information on this adjustment, you should consult your agency or bureau policies.

B. INCREMENTAL ADJUSTMENTS

New baseline regional surveys or annual CPI adjustments may occasionally increase quarters rents by more than 25 percent. When this occurs, OMB Circular A-45 allows housing managers to impose the increase incrementally over a period of not more than one year. The Circular also requires that such increases must be applied in equal increments on at least a quarterly basis.

C. ESTABLISHED COMMUNITY

OMB Circular A-45 has established the following minimum standards for use in determining which population centers (cities, towns, etc.) may be used as "established communities" when determining quarters rents.

1. An established community must have a year-round population of 1,500 or more (5,000 or more in Alaska). The population determinations must be based upon the most recently conducted decennial census.
2. An established community must have at least one doctor and one dentist, who are available to all quarters occupants on a non-emergency basis.
3. An established community must have a private rental market with housing available to the general public. This requirement excludes communities on military posts, Indian reservations and other

Government installations which may meet the other criteria contained in paragraphs IX.C.1 and 2, above.